

Interactive Display Physicalisation for raising awareness of Internationalization amongst students

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Abstract

The aim of this project is to make students studying at the Hogeschool Viaa in Zwolle more aware of the possibilities their school offers to do part of their studies or an internship abroad. Viaa is increasing the number of places where students can do studies and internships abroad, however, they notice that their students often do not know exactly what their options are. As a result of this, some of Viaa's students miss the opportunity to study abroad, and miss out on a beautiful, educational experience.

To understand how people's attention can be drawn in a public space and how awareness can be created among students, research has been done. Additionally, it has been specified what information must be displayed in order to give the students a good overview of what is possible for them.

With the help of the conducted research, a physical, rotating globe was created, where the students could scan the depicted countries using their mobile phone. After scanning, the students were led to a website where they could find all the information they need to get a good idea of the possibilities of studying or doing an internship abroad.

An evaluation through user tests with students has shown that the physical globe is a promising concept. The attention of students is captured, they enjoy exploring the possibilities, and they are excited about the information available on the mobile website. The concept will help to create awareness among students about studying or doing an internship abroad, but will need to be further developed from prototype to full-fledged product.

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1. Introduction

Doing part of a study or doing an internship in another country. For students this is one of the highlights during their studies. It has always been very popular among students: a quarter of higher education students who obtained a diploma in the 2017/2018 academic year have studied abroad for a longer period of time [50]. Unfortunately, this was not really possible for students in the past two years, due to Covid-19. Two out of three students with study abroad plans indicate that they had to have these canceled in times of Covid 19 [51]. Other students changed their plans to a location closer to home, or they chose to postpone the 'abroad experience' for a year. The enthusiasm for a study or internship abroad has in any case not diminished: the majority of students indicate that they still want to go abroad [52]. Which can certainly be a good choice. Students who study abroad for a while develop a greater respect for other cultures and people, grow as a person, and prepare for international work, which can be good for their resume [53].

At Viaa University of Applied Sciences [54] they also see that more and more students are interested in doing part of their studies or doing an internship abroad. Viaa is a small, Christian university of applied sciences in Zwolle that has recently been renovating both the building and the school curriculum. Viaa is also innovating in the field of internationalization possibilities for their students. They are expanding their study and internship opportunities abroad. They noted that there is more demand for an internship or study abroad, but that students often do not yet know exactly what is possible, especially now that all kinds of new options have been added. Information about the options to go abroad can be found on the Viaa website, but students still have trouble finding the (correct) information. In this way, Viaa students sometimes miss the opportunity to study or do an internship abroad.

Viaa wants to solve this by creating more awareness among students that there is an option to study or do an internship abroad. A screen or installation must be designed that will be placed in the central hall of the school. On the screen or installation can information be found about the options for studying or doing an internship abroad. In this way, students who walk past the screen or installation should get an idea of what is possible, and they should easily get more information if needed. To design a product that gives students more awareness about the study abroad possibilities, the following research question has been formulated:

RQ: “How to design an interactive installation to create awareness about study abroad possibility to Viaa students?”

SQ1: “How to get and retain the attention from students in a public space?”

SQ2: “How to encourage students to explore more information about studying abroad?”

In order to answer this main research question, it is necessary to investigate how it can be ensured that an installation attracts the attention of students. Especially in a (crowded) public

space in a university. Students may be focused on completely different things and may not have the time and interest at all for certain installations placed around them. It is also important to see if the attention of students can be retained. The student should interact with the installation in order to get a good idea of the possibilities for studying abroad. By answering SQ1, we gain more insight into how attention can be drawn to the installation, and how we can ensure that the installation does not disappear into the background.

Furthermore, it is important to consider what happens after attracting attention. Part of creating awareness is also providing the right information to the students, so that they can get excited about certain universities or countries. It is important to find out what kind of information needs to be provided to give students a good idea of the possibilities. Students should also have the opportunity to learn more about study abroad if they are interested. Providing the right information in a nice, structured way could possibly contribute to motivating students to do a study or internship abroad.

2. Background research

The first part of this background research is to find out in what way people are most attracted to an interactive display in a public space. There are several factors that influence the attraction of people to a display: by the content on a display, the size of the display, the placement of the display in a room and the way of interaction with a display.

The second part of this background research is to explore state-of-the-art. Several web pages of universities that also offer the option of studying or doing an internship abroad have been examined. We looked at how the partner universities and internships were represented, what information can be found on the website, how students are encouraged to go abroad, and how contact can be made.

2.1 Literature review

In this first part of the background research, literature research was conducted into the ways in which attention can be drawn to a display in a public space. This was researched to gain more insight into how to ensure that a screen attracts attention and what should be considered when designing. It focusses at content on a display, size of a display, placement of a display, and the way in which interaction is possible with a display.

2.1.1 Content type on display

To attract people, display content needs to meet various criteria. First, a display should primarily show location-specific content. That way, people walking by quickly see that the information on the display could be relevant to them [1,2,3]. Cardoso and José [1] state that in order to be efficient, the displays must show content that addresses the audience's needs, expectations and tastes. For example, a study by Parker et al. [4] showed that a digital display in a university food court, showing student-created news articles, attracted many more people than a digital display in a public square, showing general advertisements. Matching content is therefore required for the environment where the display is located.

Second, the location-specific content must be displayed in a good and effective way. The idle screen on a display must clearly show what the purpose of the display is, and it should be seen from a distance [4]. That is why static content, such as text, must be clearly legible on a display [4, 15] or dynamic content can be displayed with, for example, animations or videos. Dynamic content seems to attract people more easily than static content [4]. However, Huang et al. [5] found that when people want to take longer to look for specific information, they prefer to see text rather than video, so that they can control what they see. Therefore, it depends on the purpose of the display how the distribution of dynamic and static content should be. It also depends on the stage the user is in. Dynamic content can very well be used for the first stage, attracting attention. The next stage is holding attention and enticing the user to interact with the display. Dynamic content can also be used for this. For the last stage, it is important to provide information, this could well be done via static content.

2.1.2 Display size

Both large and small displays have their advantages and disadvantages. What is effective about using a large screen is that it attracts groups faster than using a small screen [16, 17, 18]. It is often assumed that large screens stand out more for passers-by than small screens [4]. However, Huang et al. [5] argues that no matter how big a screen is, people are more likely to look at objects around the display than at the display itself (more on this in IV). It is also the case that large displays do not necessarily promote interaction. Passers-by often do not feel comfortable when interacting with a large screen, because other people can watch what they are doing [5]. This is also the reason why people linger longer on smaller displays [5]. It therefore depends on what purpose the display is to be used for: if the display should contain a lot of information, and can be used for personal purposes, it is encouraged to place a smaller display, and when the display should mainly attract the attention of groups, a larger display can be placed.

2.1.3 Display placement

There are several factors to consider when placing the display: free space and objects around the display, the height, and natural conditions. Firstly, it is important that people can easily walk past the display. Not only because more people can then see the screen [5], but also because this stimulates the "honeypot effect" [6,7]. Brignull and Rogers [6] found this term after he concluded from his research that people are more likely to interact with a display when other people are already interacting with it, because people can see that they are not the only ones. This reduces social embarrassment, which is a key factor when it comes to refusing to interact with a digital display in front of an audience [8].

Secondly, placing objects such as posters, flyers and free goods around the display can have a positive impact on attracting people [5,6]. Parker et al. [9] states that the design of the structure holding the display is also important. A result of his research was that people were more likely to interact with a digital information display that contained a luminous information icon "i" in the surrounding structure than a digital information display without this extra addition.

Thirdly, it also matters at what height the display is located. Huang et al. [5] states that public displays placed at eye level attract more attention than displays placed above or below eye level. However, Brignull and Rogers [6] argue that the displays should at least be placed slightly above the head, so that people can see them from a distance. This applies to screens that do not use a touchscreen. Touchscreen displays are best mounted at a height where people can easily reach them. The user should be able to use the screen with the arms in a normal position next to the torso [38].

Finally, natural conditions such as sunlight and temperature also play a role when placing a display in a room or space. Sunlight can affect the brightness of the display screen [19] and the brighter the screen, the more noticeable it is to passersby [4]. Temperature must be taken into account when one has to use the display for a longer period of time, people do not want to be in an environment that is too cold or too hot [7]. When placing a display in a room, there must be enough space to walk along the display, objects can be placed near the

display, the display must be at or slightly above eye level and the information on the display must be legible regardless of the weather conditions.

2.1.4 Interaction

The different ways in which interaction on a display can be realized, have an influence on how to attract an audience. Müller et al. [7] says that in order to arouse curiosity and motivate people to use the display, it is important that the interaction should not be too complex or too trivial, interactive elements should not be incomprehensible, but surprising and novel.

Brignull and Rogers [6] add that the interaction should be very lightweight and visible from a distance. Because more and more different types of sensors are available today, there are more ways of interacting with a display possible [7]. A distinction can be made between two types of interaction: implicit and explicit [7, 20].

By implicit interaction we mean that the display reacts to users walking by, so the passer-by does not have to take the step for interaction first. An example of implicit interaction are displays that represent a passer-by on a large screen as a 3D model making exactly the same movements (Fig. 1). The body position of the passer-by is used here. According to Müller et al. [7], this is very effective in attracting people's attention. Maar om de aandacht vast te houden, en informatie te verstrekken is het een minder goede optie [39]. A display could also have implicit interaction based on facial expression or speech (for example, that the screen adapts to the amount of voices around the display). Phones can also play a role in implicit interaction: when people walk by with a matching app on their phone, it can trigger personalized display functionality [7, 20].

With explicit interaction, users can decide for themselves whether they want to interact with the display [7, 20]. When the user then decides to interact with the display, they will stay longer, because they are looking for certain information [5]. Explicit interaction could be possible with a touchscreen, but also with remote control (this could even be a mobile phone) [4, 20]. Speech control can also be used here to control the display [7], in this way there is no need for a touchscreen, but the user does have his own control over the screen. A disadvantage is that in a crowded room it is difficult to control a screen via speech. Both explicit and implicit interaction are possible with a digital display, but implicit interaction attracts attention faster, and explicit interaction keeps the attention of the public longer.



Figure 1: Photo showing an implicit interaction with a display based on the body position of the passer-by

2.1.4 Conclusion

The discussed above research findings provide already pre-liminary requirements for a display that can be placed in the central hall of Viaa. Its content on the display can best be dynamic. For example, it is wise to show something moving as an idle screen, such as an animation, moving text or a video. A large piece of text will not initially draw the students to the display, nor will it keep them busy interacting with it for a long time. It is also best for Viaa to go for a slightly smaller display. The research shows that people are tempted to feel reluctant when other people around them can see what they are doing on a display. We think this reluctance certainly applies to young people and students. With a smaller screen, it is also ensured that people keep their attention for longer; that is also useful in this case. To really create awareness about possibilities of studying abroad and encourage students to read the information by means of the display, it is nice if they can interact with the display for a slightly longer period of time. A display that is too small is also not good, it should stand out a bit and it would be nice if students could also have the option to view it together with someone else. A good size of the display to be considered is about 35 inches. Then, when placing the display, it is important to consider that enough people can walk past it. Attention can also be drawn to the space around the display. For example, posters could be hung around it and flyers could possibly be placed next to it that the students could take with them, or it could have an “i” information icon. Finally, we think it is useful to use explicit interaction for the display located in Viaa. It is nice to give the students a choice whether they want to interact with the screen or not. For some students, the display is not important at all (when they are in their senior year, for example, or if they have already been abroad), and both students and teachers probably walk past it more often on a daily basis. It is then annoying if the display always responds to you. Furthermore, the form of interaction will probably be touchscreen, because this way is easy and understandable for everyone.

2.2 State of the art

For the second part of this background research, 7 web pages were analysed of universities and universities of applied sciences, in which students are informed about studying abroad. We did this to see what kind of ways are already being done to encourage students to go abroad and what kind of information is being given, in order to get a good idea of what kind of things should be on the display of Viaa. The selection of universities and colleges consists of 3 Dutch universities, 3 Dutch universities of applied sciences, and 1 foreign university (the most international in the world [1])

During the analysis of these websites, Viaa's criteria were examined: their display must encourage internationalization, provide information, offer communication with students abroad, have click-through functions, and show stories from students.

These criteria were divided into 4 groups:

- Overview partners. How are the partner universities / internships represented?
- Information. How much and what kind of information can be found on the website? Is the information easy to find?
- Encouragement. How are students encouraged to go abroad?
- Contact. How can contact be made and with who?

Each group is detailed below. The full overview of notes for each university / college can be found in the appendix.

2.2.1 Overview partners

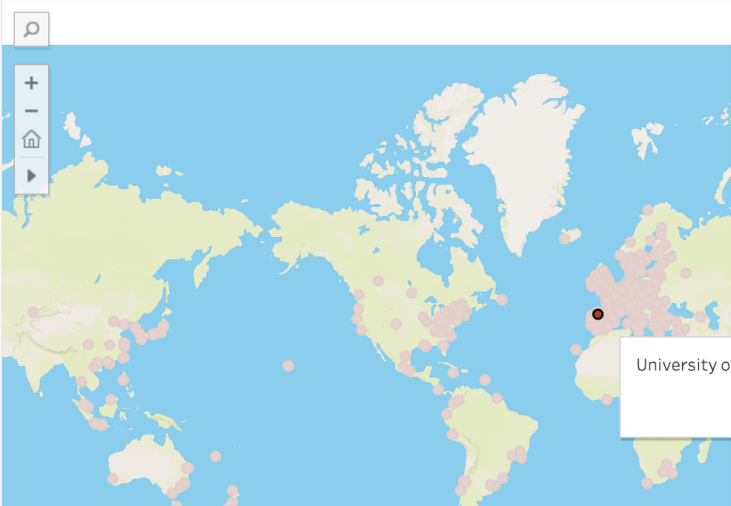
Most universities show their visiting exchange partners through a world map. Radboud university has also made this map interactive with points (universities) that you can click on, after which you can find a fact sheet and student reports (Fig. 2). This worked very well and is a good way to see immediately where you can go as a student.

In many sites there is also an option to filter. This provides a better overview, especially if the university has many partners. Utrecht University did not have a world map, but all the universities were listed in a very orderly manner. This could also work, but on a slightly bigger display it could be nice to use the space that is available for something fun and interactive.

Destinations for Radboud Students

Faculty Country

📍 Search for a country/city in the upper left corner of the map 🔍
+ Zoom in and select a university to see a list of available study subjects 🎓



University of Leon

Study subjects applicable

Journalism and information not further defined /
Business and administration not further defined

Select a study subject above in order to
see more details & the fact sheet.

Student reports

Fig 2: Exchange partners displayed on the website of Radboud University

2.2.2 Information

There is enough information on most websites about a possible study or internship abroad. In general, information can be found about what the steps are to go abroad, which partners are participating, current information (such as the corona virus), what the possibilities are for study grants, and there are brochures and videos with extra information.

An exception is Hogeschool Leiden, they have little information on their website (they only have 1 webpage), but there are references to videos and brochures. This is a way to keep the website more organized and still provide a good amount of information. However, it makes the information more difficult to find.

Windesheim has a very handy database (in Mobility Online) containing many short surveys from students who had already gone abroad. It was possible to filter by period and time, so that students can find exactly the surveys that are relevant to them. A disadvantage was that these surveys are very difficult to find, people have to search really well and click often to get there. This is also less useful on an interactive screen because people do not take all the time to search for certain information when interacting with the screen.

A number of websites had graphically elaborated the step-by-step plan from orientation to return very nicely (Fig. 3). It became a kind of comic. A disadvantage of such a comic is that there is not much further text, and you can only find more explanation by searching the site itself. A step-by-step plan can be very useful when the students are very hesitant about the whole application process because it might seem too complicated when it may not be the case at all, but this is only important when the students already know for sure that they want to go abroad.

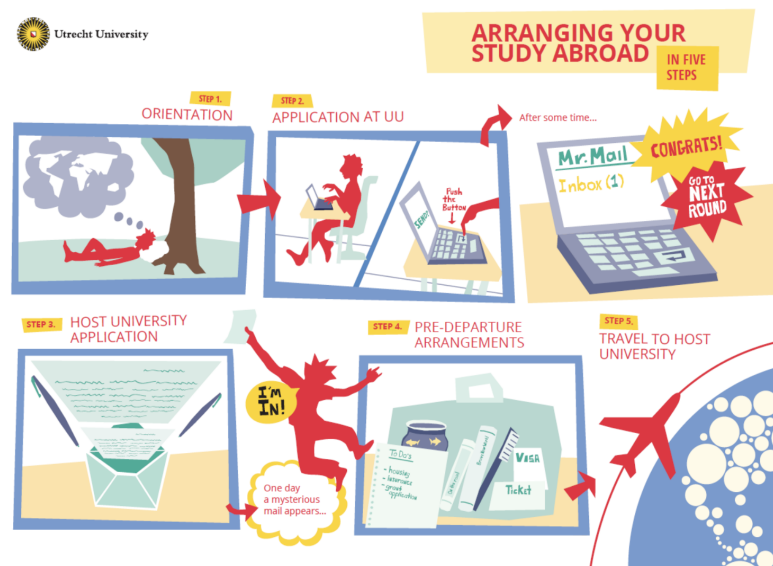


Figure 3: Step-by-step plan on the website of Utrecht University

Many websites use some sort of submenu for studying abroad. The menus are mainly on the left. The web pages themselves contain a lot of text and few images. Utrecht University uses fold-out pieces of text; this ensures that viewers are not immediately overloaded with information that they are not looking for at all. Some websites provided too much information, which made it quite cluttered. The University of Groningen had very specific information on the homepage and the rest of the information was in a very illogical order, which made it difficult to find the right information.

2.2.3 Encouragement

Many universities have a short section on the homepage that describes how good it is to go abroad. Furthermore, the degree of encouragement on each website is different. Some only give information; others pay a lot of attention on how to attract students to go abroad. In the researched sites, it is mainly done by means of videos, stories, information evenings, brochures and photos of beautiful areas

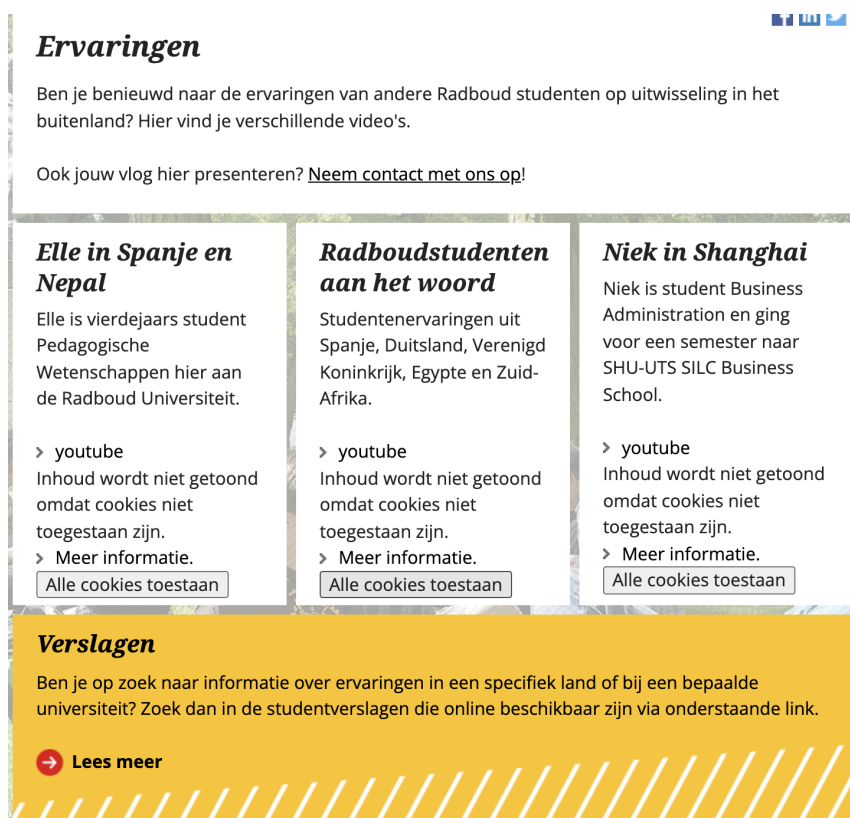


Fig 4: Stories and vlogs of students who went to study abroad on the website of Radboud University

Radboud University makes a few student vlogs available, which are hard to find on the website (Fig. 4). First, the cookies must be enabled to watch the videos, and when that is done, the videos still cannot be watched. There is also a possibility for students to have their own vlog presented, but then they have to contact the university first. Radboud University also has a large database where student reports can be read. They are not easy to find, and the platform on which the reports are presented does not look very accessible. The reports themselves are quite long, and the pictures (if any) are quite small.

2.2.4 Contact

None of the examined websites of schools and universities contained anything about direct contact with a student abroad (which the Viaa would like to have on their screen). Chat box functions and other direct means of contact were also not to be found. Many websites did make it clear how and with whom you could contact internally for questions, and where to go for more information. Some sites had a button that allowed you to make an appointment directly with the exchange coordinator.

The contact details of the partner universities were usually not immediately available, but after a good search it was somewhere on most websites. These were mainly just the address of the school/university and a telephone number, but not specifically a contact person.

2.2.5 Conclusion

This research can help with the further design of the display for Viaa in several ways. Although a website (mainly intended for finding information) is not quite the same as an interactive display (mainly intended to have fun and discover), we now have a better idea of what is possible in terms of communication of different types of information. For example, it has become clear that the exchange partners of a university or college can best be represented in the form of a world map/ globe. It would also be best if someone could filter on a continent, country, or study, in order to make it clearer. Because Viaa's exchange partners are not very spread out across the world (they are mainly located in Europe), it is also nice to be able to filter so that the universities are not all clustered together on the world map. It also helps to have click-through functions, that when a university is clicked on the map, photos can immediately be found, and stories of students who have been there. This can also be easily achieved on an interactive display. It is less attractive to make a large menu on such a screen, so it could be an advantage when the location of specific information speaks for itself.

We also learned a lot in the field of information that should be displayed. A website contains a lot of information and that is of course good, but care must be taken when designing the display for Viaa that there should not be too much information on the display. We were uninterested when reading the large chunks of text about why it is a good thing to study abroad, and that we were very quick to skip the series of text about certain conditions and prizes that the university won with their study abroad program. On a display it is probably not very easy to skip topics like these as on a website. The control and time you have when operating a website is much less when interacting in a public space with a public display. That's why we think it's good if people should be able to easily ignore or skip the irrelevant information (as Utrecht University did with drag down menus). In addition to the research of the amount of information, we now know roughly what kind of information is important to show on the display. Things like showing partner universities, a step-by-step plan, where the student should be for help, student experiences, and possible scholarships are actually discussed on every website and we will also include these things in the design for the display of the viaa.

When encouraging students to study abroad, we have seen that a number of universities have a large database with very useful surveys of students who went abroad. We think these surveys can very well help students to get a (honest) picture of an exchange partner university, but we think that these types of surveys are only useful for students who are already a step further in their "orientation phase". These kind of surveys are better placed on a website, and not on the screen. Moreover, it is difficult to keep someone interacting with the display for such a long time that these surveys could be read. It would probably work better to put down a few short quotes, or something like a short story. We also think it helps to use (large) photos to encourage students to study abroad, so students can see at a glance what it looks like there, and they can immediately form their own opinion about it. We also found out that the use of videos and vlogs can cause technical defects, so it might be better to avoid these, or keep this in mind while designing for Viaa.

We have also seen that it is important to offer help to students who get stuck or want to learn more via the website. We think it is important that this help can be easily accessible

for them. Only a name and telephone number of, for example, an exchange coordinator might be not sufficient. This must also be clearly indicated on the Vaa display. Maybe it should even be possible to scan something with a phone and make an appointment with the exchange coordinator, or that when you click on someone, a map appears with a walking route to the office of this person.

2. Requirements Capture & Ideation

In this phase, the focus is on brainstorming about the various options for conveying awareness about study abroad opportunities to Viaa students. To ensure that this ideation phase runs smoothly, this phase starts with identifying the stakeholders within this project. After the stakeholder analysis, the wishes and needs of the stakeholders are considered by interviews, a persona, and an interaction scenario. Based on this information, various preliminary requirements were then drawn up as a guideline for the brainstorming. The brainstorm itself consists of 2 parts. The first part describes possible concepts for what the design of the content on the display might look like. The second part is focused on a more physical installation, as an alternative or addition to the display. From the various concepts that resulted from the brainstorm, a final concept was chosen and further elaborated in the specification section of this chapter. Finally, definitive functional and non-functional requirements were drawn up.

3.1 Stakeholder identification and analysis

Stakeholder identification is done using the Stakeholder Salience Model (SSM) [21]. It is a way of stakeholder identification where the relationship attributes Power, Legitimacy, and Urgency are taken into account. This creates 8 types of stakeholders, as shown in Figure 5. Figure 6 shows how the stakeholders' topology is in this project.

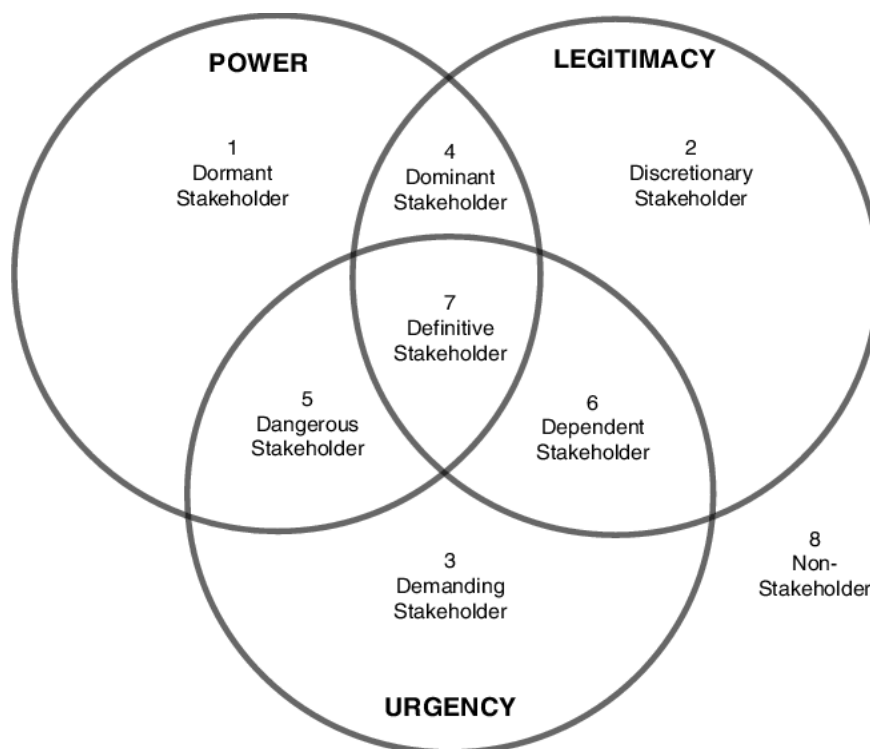


Figure 5: Stakeholders' Topology (Source: Mitchell et al., [21])

3.1.1 Students

The largest group of stakeholders are the students studying at Viaa. Because Viaa is a university of applied sciences, and they also offer post-graduate courses in addition to the standard courses, the age group of the students who walk around Viaa is between 16 and 28 years. However, the students who will be mainly interested in studying or doing an internship abroad will be a bit younger. These are probably mainly first-year students, who do not yet know much about what options Viaa has for studying abroad.

Because the final design is made for the students, they have legitimacy: input of students is desirable. The students also have an urgency to find out what is possible for them within their studies. Students alone have no power, this makes this stakeholder group *dependent*.

3.1.2 Study abroad coordinator

The person who is responsible within Viaa for supervising students who want to do an internship or study abroad, is also quite important. After awareness has been spread among students, they are referred to this person for further guidance. The study abroad coordinator knows from experience where students get stuck and what information is important. This stakeholder thus has legitimacy. The study abroad coordinator also creates a certain urgency. Because when the students can do preliminary research themselves, the study abroad coordinator can focus on supervising students instead of providing individual explanations to them about all the options they have. This stakeholder also has a certain kind of power. Certain decisions can be made, but approval must first be sought from the chancellor. The study abroad coordinator is a *definitive* stakeholder.

3.1.3 Chancellor

Viaa's chancellor ultimately makes the decisions and therefore has a lot of power. Creating awareness for students is urgent for the chancellor in order to achieve the goal that more students take the opportunity to go abroad during their studies. However, the chancellor is not really in the process, and might have little or no overview or knowledge of this subject, which means that there is a lack of legitimacy. This makes this stakeholder a *dangerous* stakeholder.

3.1.4 UT supervisors

This research is supervised by professors at the University of Twente. They provide feedback and tips during the research. Creating awareness for study abroad is not urgent for them. Although they have little or no experience with creating awareness to study abroad, this group of stakeholders does have a lot of experience with writing and supervising comparable studies. The input and assistance of these stakeholders is therefore legitimate and desirable. Furthermore, the UT supervisors have power. They have influence over what should and should not be investigated. That is why the UT supervisors are a *dominant* stakeholder.

3.1.5 Other involved

Although the display will mainly be used by students, it could also be of interest to teachers of Viaa. It can be interesting for them to see what their students can do, or where else in the

world their subject is taught. The display can also attract future students and their parents when Viaa organizes an open day at the school.

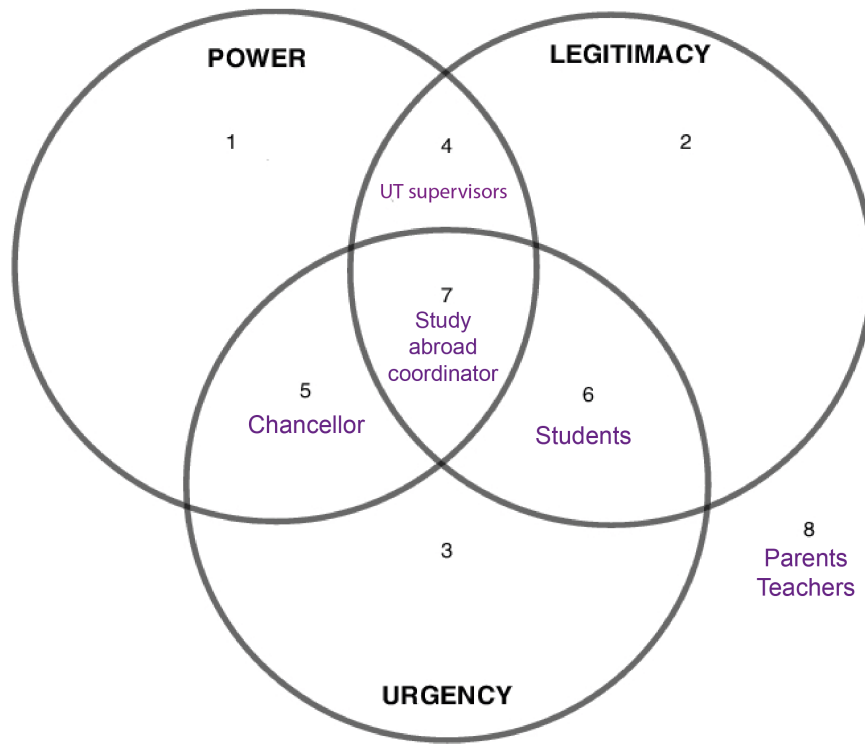


Figure 6: Stakeholders' topology in this project

3.2 Insight into stakeholders

In order to get a good overview of the current situation and to clarify the problem and the needs of the stakeholders, people from Viaa were interviewed, as well as a student who recently registered for a study abroad.

3.2.1 Viaa Interview

From a semi-structured interview that was held with a few Viaa people via Microsoft Teams [33], it has become clearer what Viaa is currently doing to create awareness for study abroad among students and what their aim is of this project.

At the moment Viaa does not do much to promote and create awareness for studying abroad. It turns out that although there is a lot of demand for studying abroad, students often do not know exactly what their options are, and quickly drop the idea of studying abroad. Now that Viaa is expanding in the field of places for an internship or study abroad, it is important that these internships and study places are also well received by Viaa students. Viaa has a website where students can find all this reasonably well, but it turns out that students do not often look at it. Viaa is looking for a fun, interactive way to increase students' awareness of studying or doing an internship abroad. Viaa would like to do this by having a touchscreen in the central hall of the school. In addition to giving students more awareness, the screen must

also provide students with sufficient information. Viaa would like to provide information on the screen of the schools and internships, information about scholarships, experience stories or videos from students, and information about where the student must be for questions.

3.2.3 Student interview

For this interview, a student was asked who recently registered for a study abroad. Optimally, this would have been a student studying at Viaa, but due to circumstances surrounding the Covid-19 pandemic, the interviewed student comes from the University of Twente. The interview that was held with the student was structured. The purpose of this interview was to find out what the process of applying for a study abroad is like for a student. Questions were asked such as “How did the university make clear what the options were for a study abroad?” and “To what extent did you have to figure everything out yourself?”. The full interview with accompanying questions can be found in the Appendix.

Several results emerged from this interview that were formed in new preliminary requirements. For example, nothing specific is done to create awareness for studying abroad at the University of Twente. This influences the student. The student is not actively involved in it and forgets that there are opportunities for study abroad. Another aspect that came out of the interview is that it is annoying for the student when there is a lot of information on a page, which is not that important at all. It is also difficult for the student to look for the correct information himself. The student indicates that registering was such an obstacle for him because it was too much in combination with the workload of the rest of his study. In the interview, the student indicated that he was very happy by reading the experiences of other students. It helped him a lot in the application process. Finally, the interview revealed that the student had been told through his mentor what he should do to study abroad, and that is how he encountered the study abroad coordinator. The student says that this was very nice, but that he would have liked to have contacted her sooner.

3.3 Preliminary Requirements Elicitation

In addition to having a good overview of the stakeholders, it is also important to prepare several preliminary requirements. In preparing this, the requirements of the client, the conclusions drawn from the background research, and the interviews with a student and Viaa were taken into account. Table 1 shows the preliminary requirements.

No.	Requirement	Source
1	There must be an opportunity to easily obtain more information about a particular university or internship. Without too many click-through options.	Background research, Client
2	It is described/shown where to contact the study abroad coordinator.	Student, Client
3	The display must stand out so that students do not just walk past it.	Background research, Client
4	The universities/countries where the student can study are clearly shown on a map.	Background research

5	It should contain information about student experiences.	Client Student
6	It should create awareness among students that they have the opportunity to study abroad.	Client
7	Students should not be overwhelmed by too much information.	Background research
8	It should be easy to use and not take too much time.	Student

Table 1: An overview of the preliminary requirements

3.4 Concept generation

Individual brainstorming is done in this part. Initially, concepts were devised for an interface on an interactive display, which was Viaa's original question. After coming up with a few concepts for this interactive display, the researcher started brainstorming about a possible physical replacement or addition to the display. The concept generation now consists of two parts: concepts for an interactive display, and concepts for a physical installation.

3.4.1 Interactive display

To come up with various concepts for the design of an interactive display, the brainstorming technique mind-mapping [34] was used. A few ideas were further elaborated below. When coming up with the concepts, a number of requirements should be taken into account: the screen should display the partners, student experiences, information about scholarships and a way to contact the study abroad coordinator.

3.4.1.2 Brainstorm

As a brainstorm, a mind map was made (Fig. 7). In order to process the different content, separate ideas have been devised for showing partners, scholarships, student experiences, and the way of interacting with the screen. A few notable ideas are further elaborated below.

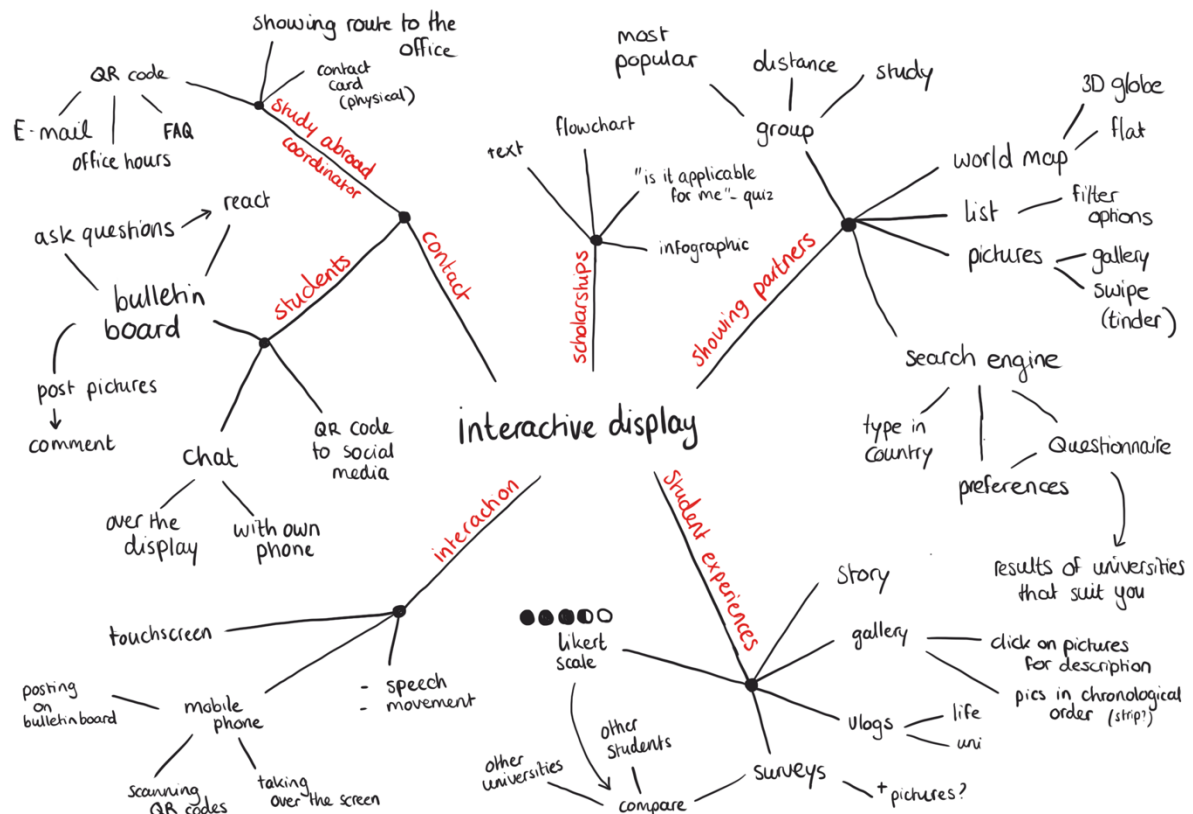


Figure 7: Mind map of concepts for interactive screen

C1: 3D globe

One of the ideas that emerged from the mind map is to display a 3D globe on the touch screen. On an idle screen this globe gently spins a little on its own, and when someone interacts with it, they can spin the globe to any location. The 3D globe shows the places where students can go for a study abroad. Clicking on these places will reveal more information about the universities in that country. To make it a little more personal for the students, a photo of someone who is studying or has studied in that country can also be shown instead of a place indicated by a simple dot. If one would click on that photo, information can be found there about the university and how the person in the photo experienced it.

The globe is supposed to be centered on the screen. The globe may be quite large, so it stands out more. In addition to the globe, a pop-up menu could be considered, so that initially the text is not visible, and the focus is on the globe. In the pop-up menu there could also be an option to filter the countries by education or continent, since Viaa has many different types of partners for countries and continents. When filtering is possible, students will have a clear overview, and they can easily search for something specific. Figures 8 and 9 show sketches of the 3D globe.

Touchscreen

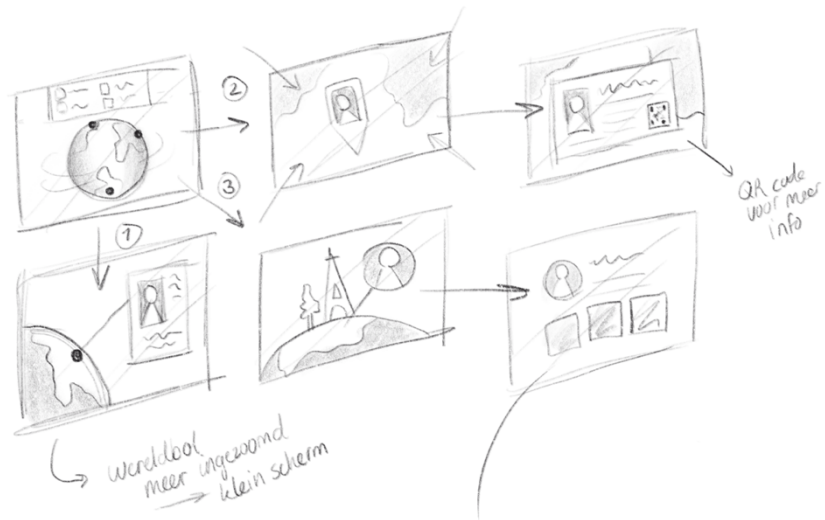


Figure 8: Sketch of 3D globe

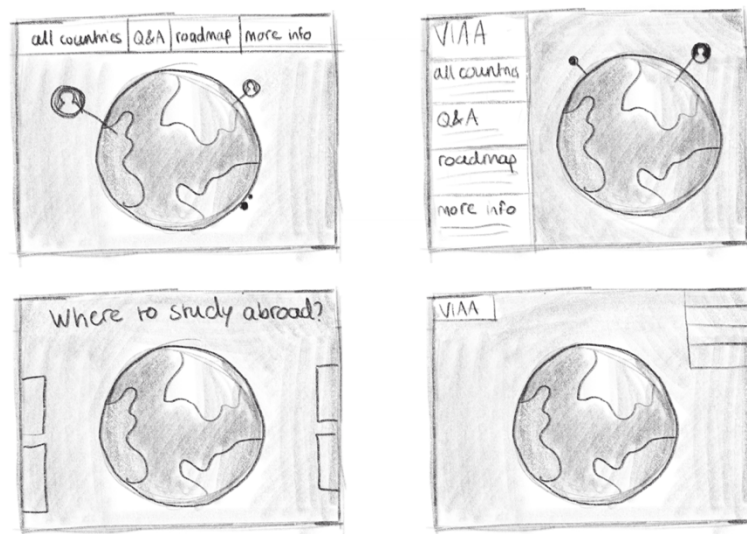


Figure 9: Sketch of 3D globe

C2: Questionnaire

Another idea that emerged from the brainstorming is to use a kind of questionnaire as the first screen. Instead of students looking for a location, internship or training themselves, personal suggestions are given based on a number of questions. These will be questions like “Are you interested in studying abroad?”, “What kind of education are you doing?” “Where do you want to go?”. Of course there is also the option to skip a certain question, for example if the student does not care where the study is taking place. The universities and institutions that result from this can be displayed in different ways. It can simply be placed under and next to each other (figure 10) or in the same way as with Tinder. Tinder is a dating app where the user can indicate by swiping left or right whether the profile appeals or not [35, 36]. This way the user can see many profiles in a quick way. For this concept, this would mean that the user sees universities and internships passing by, which can then be rejected (after which a new one will appear) or be liked (after which more information can be read about the university). At any time, the user can choose to transfer all liked universities from the screen to a mobile phone for later review.

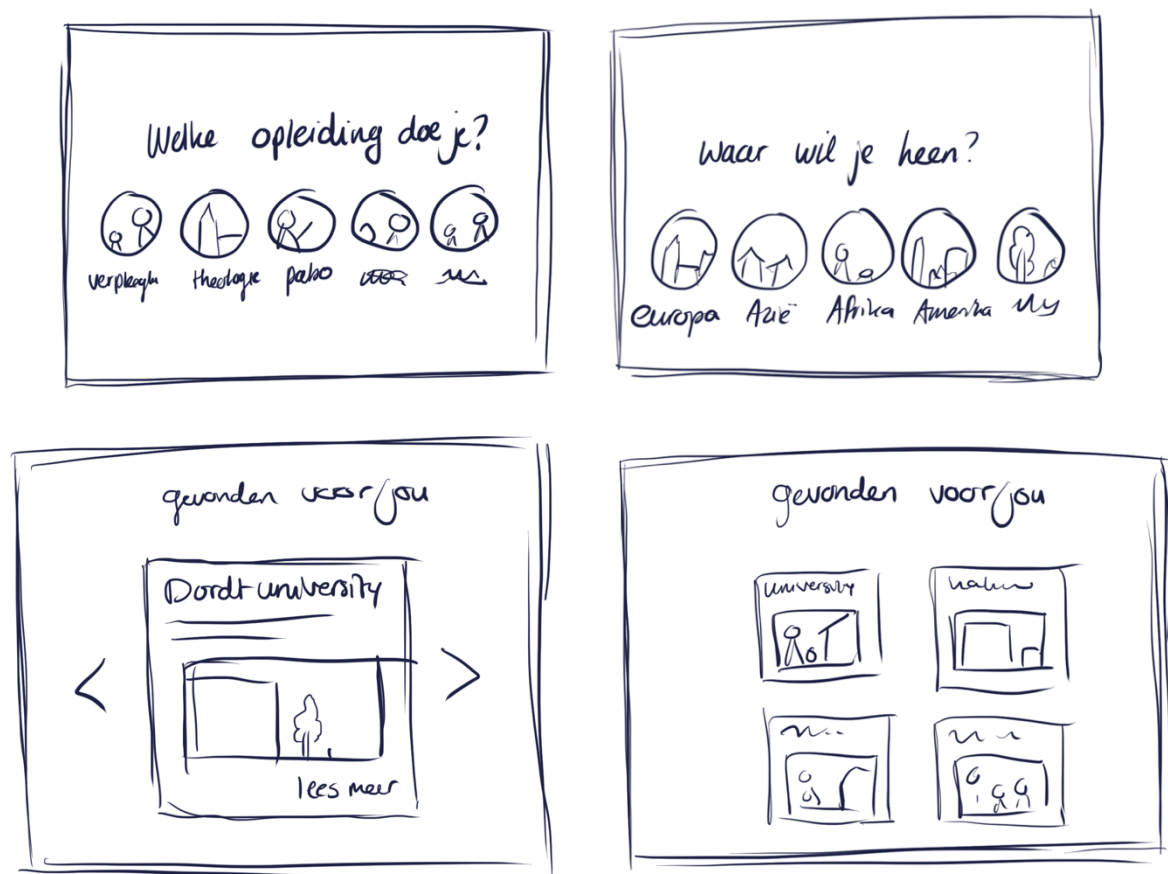


Figure 10: Questionnaire sketches

C3: Bulletin board

Another concept is to set up a digital bulletin board as the home screen of the display (Fig 11). Here students can post content on the bulletin board using their mobile phones. This content can consist of questions, experiences, facts, photos, links to useful websites, etc. Other students can respond to this, which creates a kind of community within the university. Students no longer have to ask all their questions to the study abroad coordinator, and they have more support from each other.

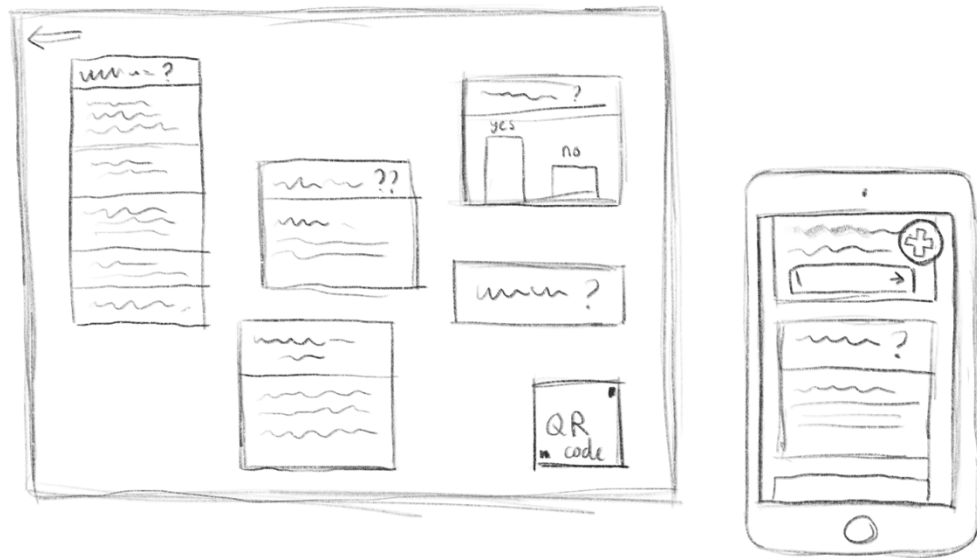


Figure 11: Bulletin board concept sketch

Concept preferences

Although a concept was not clearly chosen, a preference was given to the globe concept. This concept best meets the preliminary requirements: more information is easy to find when clicked through, student stories are visible, and a large spinning globe stands out. The interesting thing about a globe is that students can immediately see what the display is for. After all, a globe is often seen as a symbol for travel. Students who are interested in this will be attracted to the screen more quickly. Because the globe on the screen rotates a bit when it is idle, the screen shows dynamic content, which attract people more quickly according to the aforementioned research by Parker and Tomitsch [4].

The bulletin board was another promising concept. Viaa University of Applied Sciences stated in an earlier interview that it would be nice if several people could interact with the screen at the same time. At Viaa, great value is given to connectedness and cooperation. This bulletin board would therefore be a good way of creating a community within Viaa in which the students can help each other. However, a disadvantage is that not all information that a student is looking for is on the screen. Then it is the intention that this student asks a question about it, but that would mean that the student might have to wait a very long time for an answer, and would have to go back to the screen to see if there is a response.

The concept of the questionnaire was the least appealing. It is difficult to say whether it attracts students in this way. Some questions may be too personal for students if they don't know in advance for what purpose it is. When the results come out, and the student has to go through them, it can be quite time consuming if done the Tinder way.

3.4.2 Physical installation

There are various options for disseminating information and raising awareness about studying abroad. Presentations can be given, informative emails can be sent, flyers handed out, etc. In this case Viaa has chosen to spread awareness and information via a display with touchscreen. There are a few reasons why it might be interesting to expand / replace this with a physical installation.

First, preliminary research has shown that physical objects placed next to a screen often attract more attention than a screen itself [5,6]. In addition, displays themselves are often overlooked because displays can be found everywhere these days. In this way it is quickly seen as advertising.

Second, there is more room to unleash creativity in the design process when there is no need to limit yourself to a touchscreen. There is an opportunity to create something innovative, something that stands out in a space. This can also offer opportunities to design something that is easy to use by several people at the same time, which is more difficult with a screen.

Another reason for a switch to a physical installation is that the researcher is eager to take on a new challenge. This assignment from Viaa was also carried out by another designer. As a result, making a second design seems a bit redundant, so further consideration can be given to an addition or alternative to a display.

Brainstorm

The same preliminary requirements were taken into account for the brainstorming session of a physical installation as for the interactive display. Brainstorming is also done in the same way as brainstorming for the interactive display. The mind-map of this brainstorm is shown in figure 12. Subsequently, a number of striking ideas are further elaborated.

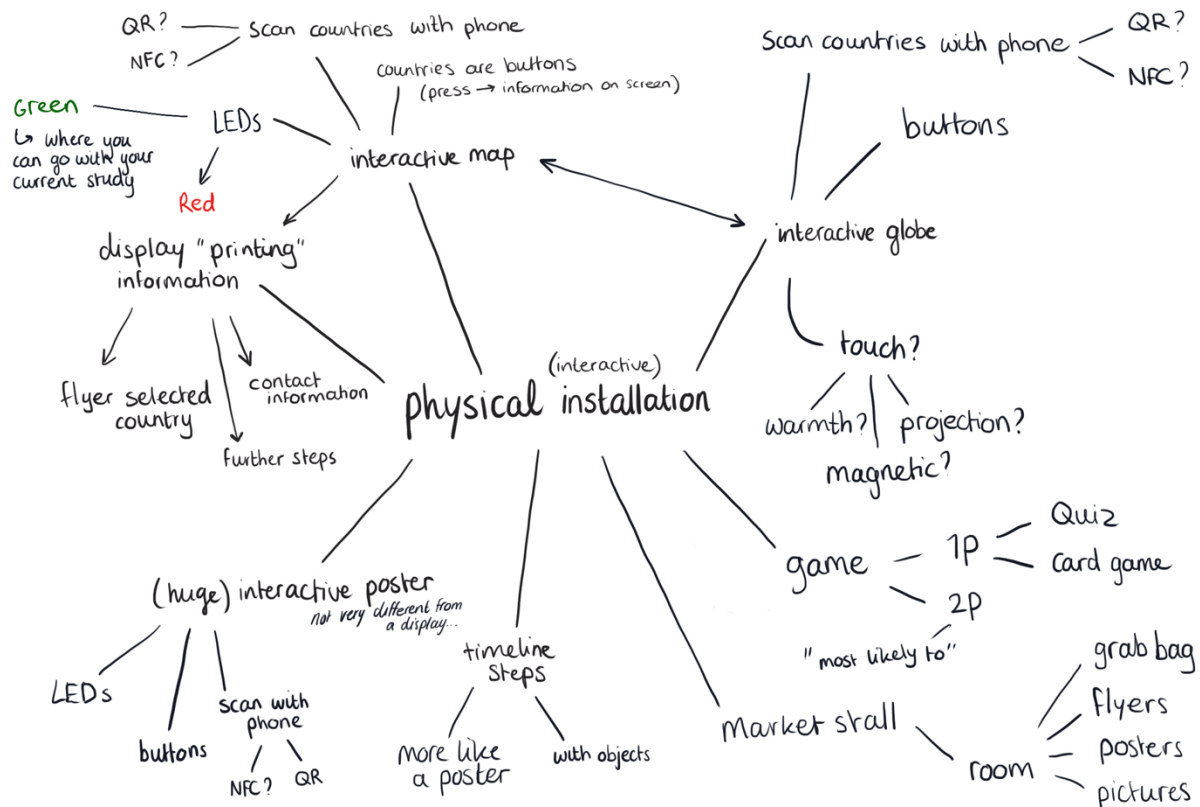


Figure 12: Mind map of concepts for physical installation

C4: Interactive map

One idea that came out of the mind map is to create an interactive world map. An ordinary world map is used for this to which several adjustments have been made. To show where the partner universities are located can be done in different ways. One of the ways is to have a screen next to the world map (C4.1, figure 13). The user can press the buttons on the countries in the world map, after which information about the country and its universities appears on the screen. More information can also be displayed on the screen and there can be referred to a contact person. Another way in which a map can be used interactively is by letting the user scan the countries with a mobile phone (C4.2, figure 14). This is almost the same as the map with the screen next to it, but now the information about that scanned country and the partner universities can be viewed on the mobile phone by means of an app or website. A final way of making a map interactive can be done via a filter system and small lights (C4.3, figure 15). The lights are incorporated in the map and represent a university or an internship. Because there are quite a few lights, there is the option to filter using buttons located below the map. After filtering, considerably fewer lights will light up, which immediately gives the user an overview. Using a QR code, the user can save his final result in their mobile phone for later reference.

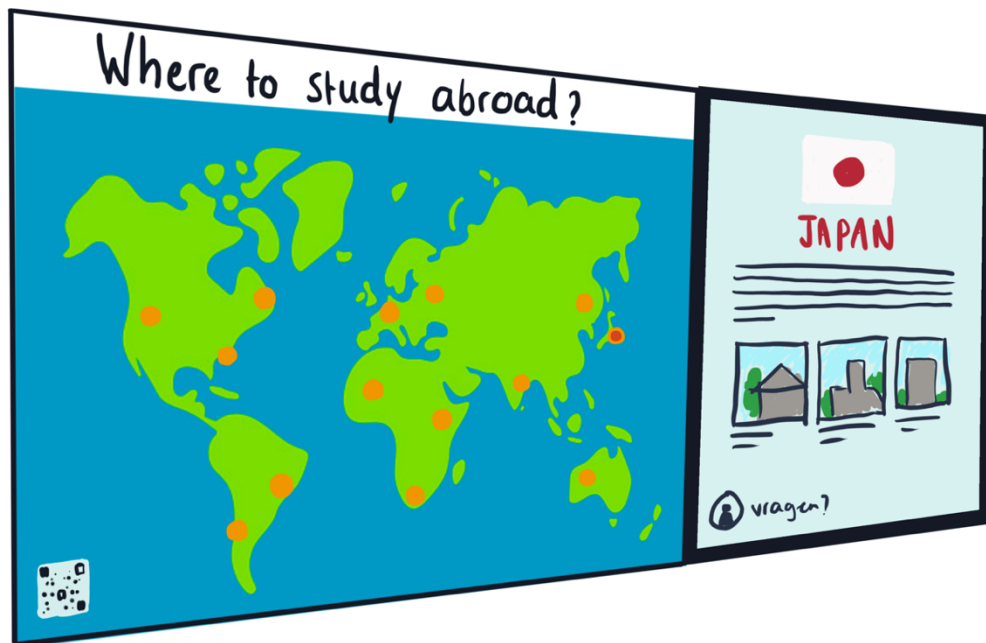


Figure 13: Concept C4.1



Figure 14: Concept C4.2

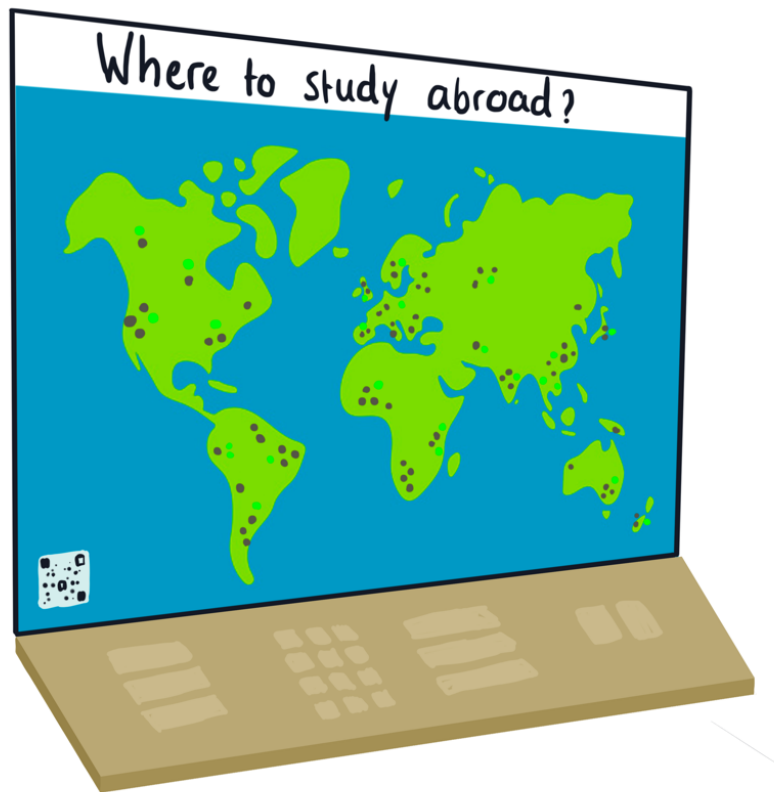


Figure 15: Concept C4.3

C5: Interactive globe

This concept is derived from the concept that came out of the brainstorming for an interactive screen with a 3D globe as the starting screen. This physical globe is rotatable and can be used by several people at the same time. The globe concept can be developed in the same way as the interactive world maps above. For example, the globe can be supported with a screen (C5.1), have a possibility to scan the countries with a mobile phone (C5.2), and use different lights that indicate where the student can go after filtering (if necessary) (C5.3).

C6: Interactive poster

A simple concept is an interactive poster. This poster contains some basic information about the possibilities for a study or internship abroad. There is not too much text on it; if a student wants to get more information, there is the possibility to scan with a mobile phone for more information. Students are then directed to a website or app, where information about that specific topic can be found. This way they can go through the information again later at their own convenience.

C7: Space

This concept is more of a small space design, where students get different study abroad influences and ideas from other students (Fig. 16). A globe has been projected onto the floor, indicating the places where students can study or do an internship. When a student gets into this space and stands on the indicated spots, they can activate a student's study abroad experience story with photos. It could also be possible to tell the story with sound in addition to the photos and text.



Figure 16: Sketch of mall space concept

3.5 Approved concept

In order to get an overview of the concepts and whether they are suitable or not, this part first focusses on which concepts meet the requirements on the basis of the preliminary requirements. The preferences of the designer and feasibility are also considered. Finally, a concept is chosen and further developed.

3.5.1 Technology preferences and feasibility

In order not only to limit it to a physical installation when choosing the best concept, the conceived concepts of the interactive screen are also taken into account. Choosing the final concept is done partly based on the preliminary requirements. What also plays a role in the

choice of the final concept is that it must be feasible for the designer. Both technically and in terms of time.

In table 2 the concepts are linked to the requirements that apply. It is striking that there are not many concepts that immediately clarify where to contact the study abroad coordinator. Also, not all concepts show the universities and internships on a world map. On the other hand, creating awareness applies to all concepts, which is also the most important requirement.

No.	Requirement	Concepts
1	There must be an opportunity to easily obtain more information about a particular university or internship. Without too many click-through options.	C1, C4.1, C4.2, C5.1, C5.2, C6
2	It is described/shown where to contact the study abroad coordinator.	C1, C3, C4.1, C5.1, C6
3	The display must stand out so that students do not just walk past it.	C1, C2, C4.1, C4.2, C4.3, C5.1, C5.2, C5.3, C7
4	The universities/countries where the student can study are clearly shown on a map.	C1, C4.1, C4.2, C4.3, C5.1, C5.2, C5.3, C7
5	It should contain information about student experiences.	C1, C2, C3, C4.1, C4.2, C4.3, C5.1, C5.2, C5.3, C7
6	It should create awareness among students that they have the opportunity to study abroad.	C1, C2, C3, C4.1, C4.2, C4.3, C5.1, C5.2, C5.3, C6, C7
7	Students should not be overwhelmed by too much information.	C1, C2, C3, C4.2, C4.3, C5.2, C5.3, C6
8	It should be easy to use and not take too much time.	C1, C3, C4.1, C4.2, C5.1, C5.2, C6

Table 2: Overview of concepts that are meeting the preliminary requirements

3.5.2 Chosen concept

Based on the technology preferences, feasibility and preliminary requirements, a combination of the concept of the physical 3D globe, and of the physical 3D globe with screen was chosen as the final concept. The possibility that the user can press the buttons, after which information appears on the screen, is eliminated, but the screen itself remains. This can be an addition for students who can't scan (for example because they do not have a phone with them, or because the scanning doesn't work), but it can also serve as a means to attract more attention. For example, it could display general information.

The main reason for choosing this concept is that a globe stands out, students walking past it may be interested in turning it. Also, interaction with the globe is possible with several people at the same time, which can result in a conversation between students, possibly leading to more motivation to study abroad. Information does not have to appear grand at first. With the help of the screen and the app, there is always more information to be found if this is necessary for the student. The app and the screen also clearly show where to go for more questions. The student can use the app to view the necessary information again later, so that coming back to the installation each time is not necessary.

Making this concept may be a challenge. Three parts have to be designed: an app or website that shows which universities / internships can be found in which country; the globe itself, with a technique that allows the countries to be scanned with a mobile phone; and the content on the screen next to the globe. This can take a lot of time, but it can also be solved by not programming the website or app, but making it with the help of software that does not require programming. The content on the screen next to the globe doesn't have to be complicated either, and there are also a number of (easy) ways in which data can be sent to a mobile phone without an internet connection.

3.6 Specification and definitive requirements

The concept is further described in this section. Definitive requirements are drawn up based on a persona and an interaction scenario.

3.6.1 Specification

A globe, content on the screen, and a mobile website must be designed and created. For the globe, there must be a large sphere, on which the continents are painted, that is large enough to make an impression and has enough space for the spots that should represent the countries. These spots can be scanned with a mobile phone using sensor technology. The globe should be easy to rotate, a rotating mechanism will be attached to the bottom of the globe.

For the mobile website, when a country is scanned on the globe, the first screen contains an overview of the universities and internships that can be chosen as study or internship place. When an option is chosen, more information can be found about the study or internship, the admission requirements, a student story, and at the bottom of the page there is a possibility to ask questions. In the menu there is an option to navigate to the other countries (without having to scan), a webpage containing information about scholarships, a webpage containing useful information, and a webpage where everything can be found about how to contact the study abroad coordinator.

For the screen, it should be large enough to be in good proportion to the globe (about the same size or slightly smaller than the globe). This screen will be placed below or next to the globe and must show (dynamic) content in the form of a slideshow. This content will consist of indicating application deadlines and featured locations of schools and internships. The screen could eventually be built in together with the globe in an entire installation (Fig. 17, 18, 19), but this research focuses on a prototype of the concept, where this entire installation cannot be realized.

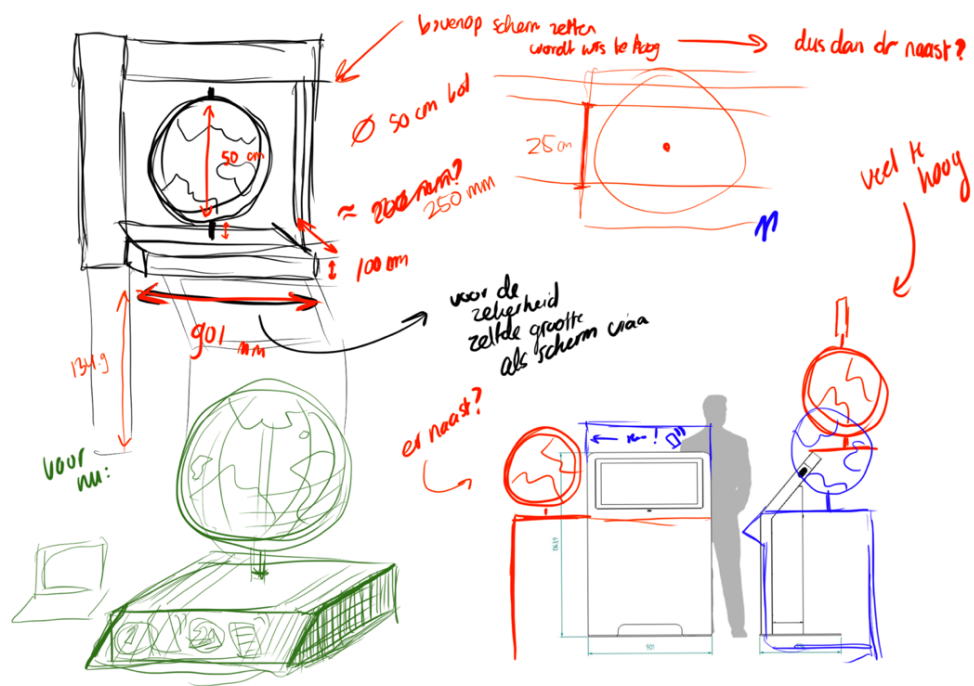


Figure 17: Sketch of brainstorm for installation

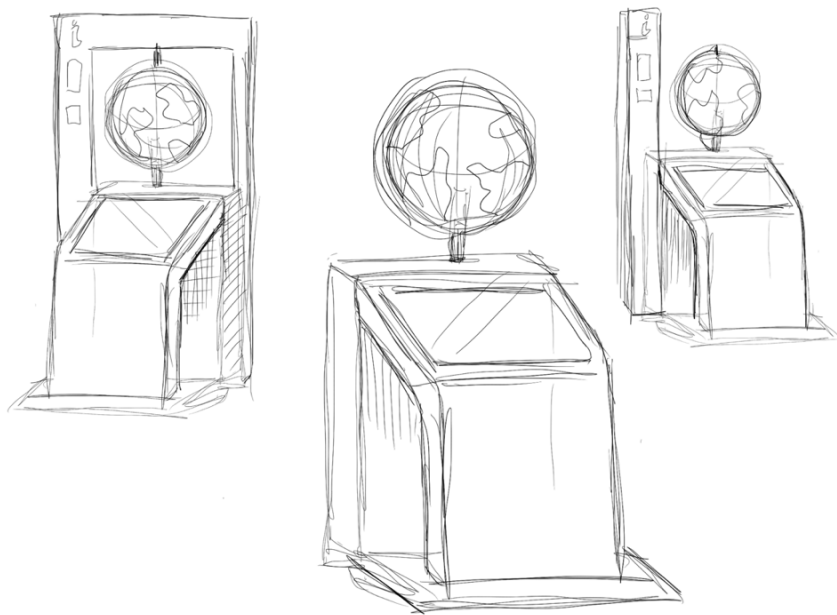


Figure 18: Sketch of possible installations



Figure 19: Final sketch for Globe + installation

3.6.1.1 Persona and interaction scenario

To further clarify the concept, a persona with an associated interaction scenario has been created. This is a way to see how the concept will be used and by whom. First, a persona is described: a young student studying at Viaa (Fig. 20). It was created in the online program Xtension [42]. This persona is based on the previously mentioned interview with a student. An interaction scenario is then described, based on the persona, in which it is described step by step how the young student uses the installation and what she feels (Table 3). Finally, a conclusion is drawn from the persona and interaction scenario.

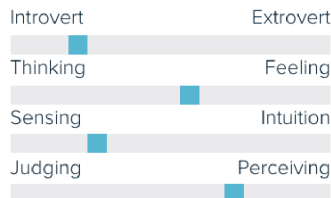
Sofie Ensing



"Just give it to me, then I'll help you"

Age: 18
Work: Student
Family: Mom, Dad, 2 older brothers
Location: Zwolle
Hobbies: Dancing, go out with friends

Personality



Caring

Emphatic

Perfectionist

Curious

Goals

- Have a successful career as a nurse
- Help as many people as possible around her
- Make parents proud
- Enjoy student life

Frustrations

- She thinks that other people often underestimate her
- Can't stand it when people want to take care of her
- Sometimes sets the bar too high for herself
- How bad health care is in developing countries

Bio

Sofie started a nursing study this year. She likes it very much, she got to know a lot of new people and she also gets good results. She still finds it difficult to find the balance between school and friends, but she always puts her studies first. She looks up to her brothers, who are very smart and already graduated.

She once heard from a senior about an internship abroad, she helped in a hospital in Ghana. This also seems like a lot of fun to her, but she is reluctant to figure this out already. She can't seem to find anything about it at first, and she's afraid to ask anyone, especially since this is just an idea.

Figure 20: A persona of a student studying at Viaa

Step	Action
1	Sofie walks into the Viaa and her attention goes to the globe that she sees in the hall. She is curious and walks towards it.
2	When she gets closer to the globe, she notices the dots that are placed on the countries. She checks which countries have dots, and finds out that the globe can be turned.
3	Due to the text on the screen next to the globe, Sofie has realized that the globe has to do with studying abroad.
4	Sophie now sees the instructions on how to use the installation, she has to scan the dots using her phone.
5	She takes her phone out of her pocket and slowly turns the globe. She sees several points in Africa and immediately becomes enthusiastic. She did not know the university had so many destinations in Africa.

6	Sofie follows the instructions on how to use the globe. She is curious if it will work. She holds her Iphone against the marked point at Ghana.
7	On her screen, she sees a pop-up asking if she would like to open the link in her web browser. Sofie clicks on the pop-up and is redirected to a website. Sofie is excited that it actually works.
8	When the website is loaded, Sofie is immediately drawn by the photos that come up, she scrolls down to look for a nursing internship in Ghana. A number of options immediately come up.
9	Sofie clicked on a few, and got an idea of what is possible. She is even able to do an internship at an aid organization!
10	Sofie has become enthusiastic, and would like to know what the next steps are to investigate her plans further.
11	It is indicated on the website that she can easily contact the exchange coordinator, without having to have her plan fully mapped out. Sofie does not hesitate for a second and decides to visit the office during the indicated office hours, she likes personal contact better than sending an email. She also likes that there are different options for contacting the study abroad coordinator.
12	Sofie makes a screenshot of the office hours of the coordinator, that way she can easily look at them again when she wants to stop by.
13	Sofie closes her phone and walks away from the globe, her class starts.
14	When she opens her phone after a few hours, the web page is still open. She looks curiously further, also at the other destinations. Sofie is happy that she now knows that all these options are available, now she can plan her future further.
15	When Sofie walks along the globe with a friend the next day, she tells her that yesterday she found out that she can go to Ghana, and that her friend also had to go and have a look.

Table 3: Interaction scenario based on persona

The interaction scenario clearly shows how the interaction is divided into stages. Steps 1 to 7 are mainly the stage where attention is drawn, in steps 8 to 10 the attention is held and information is provided, and in steps 11 to 15 something can be actually done with the information, without the website / globe is needed.

It also shows exactly how the globe will be put into use, and approximately in what order this will happen. Of course, this order can change per person. For example, there may be students who only rotate the globe to see approximately where they can go, and that way they have already seen enough, or there will be students who do not want to contact the study abroad coordinator etc.

3.6.2 Definitive requirements

The requirements are divided into Functional (technical) requirements (Table 4) and non-functional requirements (Table 5). Furthermore, the requirements are divided into 3 groups: globe, mobile website, screen. The requirements are presented using the MoSCoW method [40]. This is a commonly used method to clearly show which requirements have priority and which do not.

Functional requirements

No.	Requirement	Priority
<i>Globe</i>		
1	Must direct to a mobile website after scanning the corresponding NFC chip.	MUST HAVE
2	It must be possible to rotate the globe	SHOULD HAVE
3	The globe must be able to rotate smoothly	SHOULD HAVE
<i>Mobile website</i>		
4	Must have an option for the students to filter the partner universities based on their current study.	COULD HAVE
5	Contains information about the study abroad options per country.	MUST HAVE
6	Via the menu there is the possibility to find other countries without having to scan them first.	SHOULD HAVE
7	It must contain information about scholarships and student experience stories.	SHOULD HAVE
8	It must display information about the contact person (study abroad coordinator).	MUST HAVE
9	There are click-through options for obtaining more information on a specific topic, but the important information is on the first page.	SHOULD HAVE
<i>Screen</i>		
10	The content must be displayed as a slideshow.	COULD HAVE
11	There must be an explanation of how the countries can be scanned.	MUST HAVE
12	There must be an explanation about enabling NFC on Android phones.	SHOULD HAVE
13	It must show content like recommended universities, news, deadlines	SHOULD HAVE

Table 4: List of functional requirements

Non-functional requirements

No.	Requirement	Priority
<i>Globe</i>		
1	Must attract students.	MUST HAVE
2	Every chip must be reachable by users with their mobile phone. Chips should not be placed too high.	MUST HAVE
3	Must be appealing: it is recognizable as a globe, the counties need to be regognizable, and the colors are logically chosen.	SHOULD HAVE
4	Must be able to be used by several people at the same time.	SHOULD HAVE
5	Must be easy to interact	SHOULD HAVE
6	Interacting should not take too much time	SHOULD HAVE
7	It must be clear how to interact with the globe	MUST HAVE
<i>Mobile website</i>		

8	Must be appealing: the colors are nice, photos are used, there is coherence.	SHOULD HAVE
9	It should be easy to navigate through the website.	SHOULD HAVE
10	Must inform students about the possibilities for study abroad.	MUST HAVE
11	Must give students an idea of what the next steps are for an application and where they can go for questions.	MUST HAVE
<i>Screen</i>		
12	It should contain dynamic content such as videos and animations that explain what the installation is about.	COULD HAVE
13	Must attract students.	SHOULD HAVE

Table 5: List of non-functional requirements

4. Realization

This chapter describes the process of how the design is realized. The chapter starts with an explanation of the design process that was used, then describes how a Lo-Fi prototype is made and tested and evaluated. Subsequently, the materials and software that were used are described, after which the realization of the subsystems globe, screen, website and instructions are described. Finally, an evaluation based on functional requirements is described in this chapter.

4.1 Creative Technology Design Process

The Creative Technology Design Process described by Mader and Eggink [31] is a process that is widely used within the Creative Technology bachelor program at the University of Twente when designing products and applications. The model combines divergence (opening up the design space) and convergence (reduce the design space) in a cyclical way, which ensures that the different types of routes are included within a design process.

4.2 Lo-Fi prototype

A lo-fi prototype was made of the installation to investigate whether users can easily use the NFC chips, whether the transition to a mobile website worked, and whether there was demand for a corresponding screen with more information. This first test provided more insight into this and ensure that the requirements for the actual installation are tightened up.

4.2.1 Set-up

For this lo-fi prototype, an existing globe with a diameter of 30 cm is used, with 2 NFC chips attached to it. The websites that are displayed when the chips are scanned have a different outline, so that a simple test can be done on whether it works or not.

NFC1 directed the user to a mobile website (created with Wix, Fig. 21), whereafter scanning, a slideshow of the countries/universities that the student can go to were immediately shown. Below those countries, a story about the experiences of a student was shown. Below that is an option to contact the university. In the menu there was a possibility to navigate to other countries, to find a step-by-step plan, information about the scholarships and contact (again).

NFC2 directed the user to a mobile site (also made with Wix, Fig. 22), whereafter scanned photos of the country can be seen immediately, and can be filtered by current education, internship / study, and area. The filters did not yet work with this prototype, the “universities” were all still listed below each other. At the bottom of the page there is again an option to contact the study abroad coordinator. The menu corresponds to the menu of NFC 1.

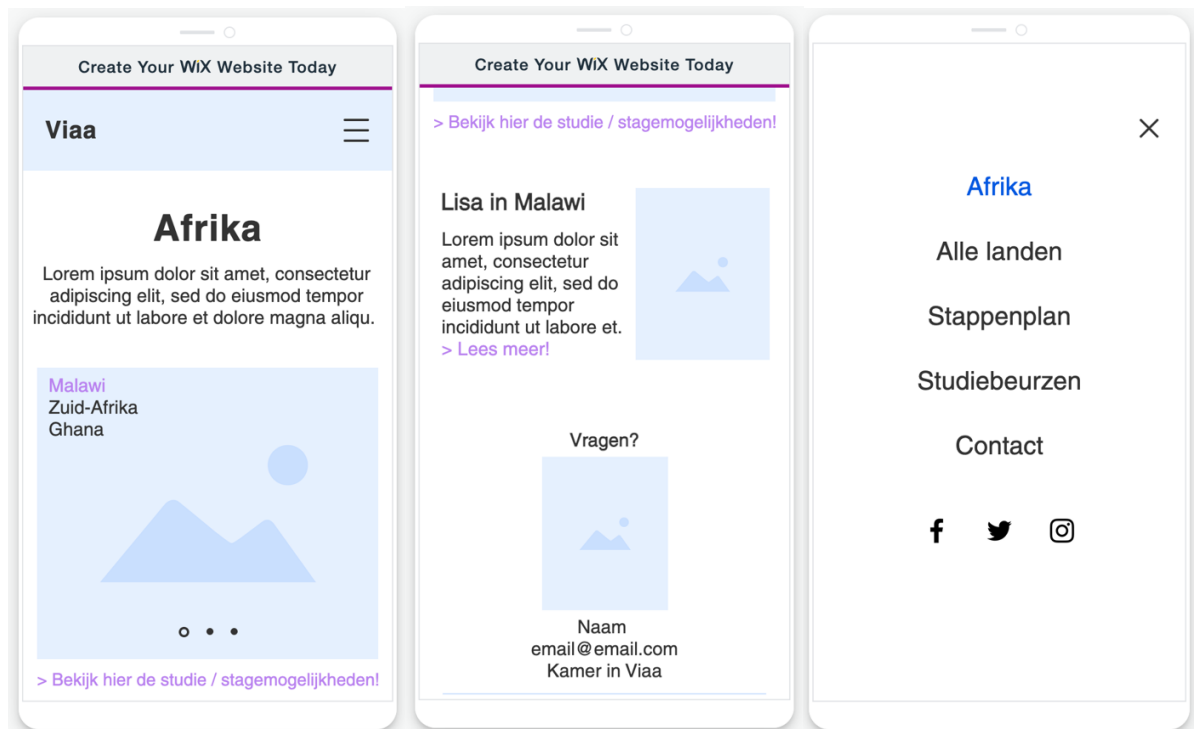


Figure 21: Mobile website of NFC1

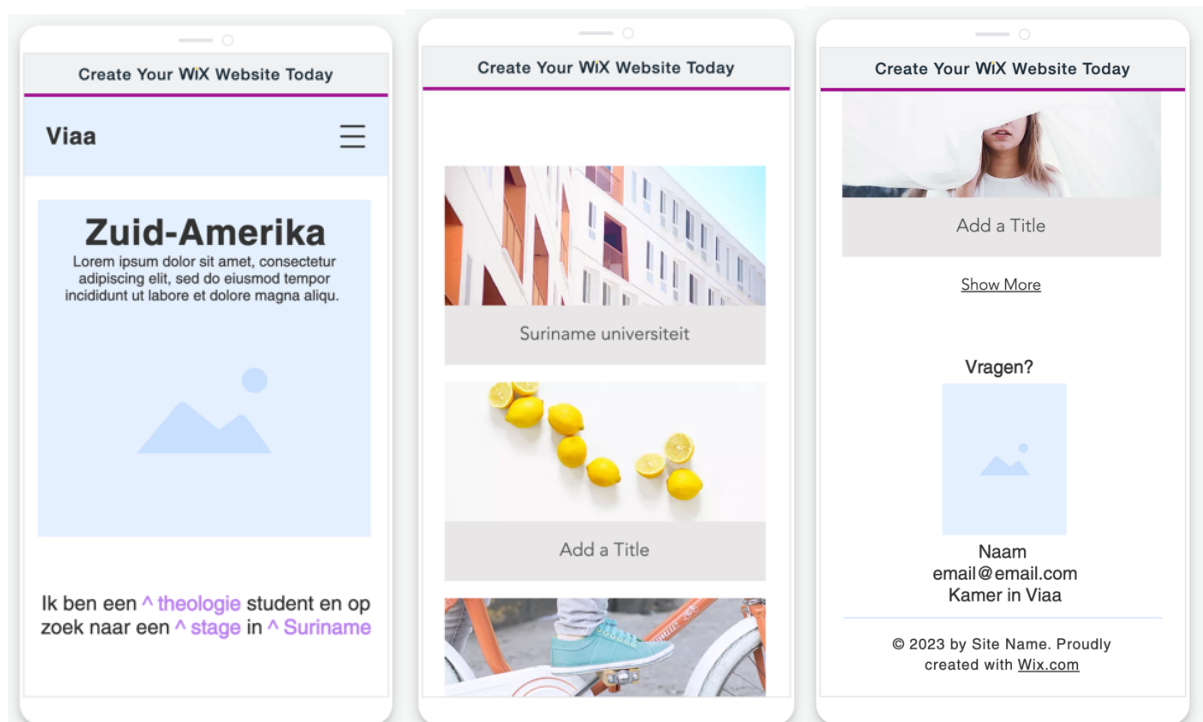


Figure 22: Mobile website of NFC2

A rough first design was made for the screen in PowerPoint [43]. It is mainly a support for the mobile website and contains all information in one place (Fig. 23).



Figure 23: First design of the screen

4.2.2 Procedure

This Lo-Fi prototype has been tested by 5 students between 19 and 23 years old, in a suitable room (enough space, no distractions) at the researcher's home. This is done because of the strict Covid-19 measures that played out at the time.

The test procedure was as follows: the globe with the NFC chips on it and a laptop with the PowerPoints on it were placed on a table (Fig. 24). The participant scans the desired NFC chip with a mobile phone. When this is done, they will see a pop-up on their mobile phone. At the same time, the researcher presses on the accompanying PowerPoint slide at a distance via a wireless mouse, so that the participant notices this minimally. This method is also known as the “Wizard of Oz” technique [41]. This is a technique where the tester is made to interact with a computer system is doing the work, when it is actually being done by a human being. After testing, a number of simple questions are asked to the participants, especially about the use and operation of the installation.



Figure 24: Test setup of the Lo-Fi prototype

Because this is only a Lo-Fi prototype, and it has not yet been worked out in detail, the questions are more focused on the technical aspects than on the actual information. In terms of content, there is nothing to read/see yet. It is therefore difficult to draw a conclusion now whether the installation will give students more awareness about the possibilities to study or do an internship abroad. Below are the questions that were asked.

Q1: What type of phone do you have?

Q2: Were there any problems scanning the chips?

Q3: Which website design appeals to you more? Africa or South America? Why?

Q4: Does the screen support the globe well enough?

Q5: How could a screen add more to the experience?

4.2.3 Results

This test also showed that Android phones have the NFC scanner in a different location than Apple phones. While scanning the countries, the Apple users (2) had more trouble finding the right way to make a connection than the Android users (3). However, one of the three Android users could not connect to the NFC chips. The option to scan NFC was disabled for this participant. It could be turned back on manually in the phone settings, but it was still a challenge to find this in the settings. After the option to use NFC was turned on again, scanning the chips was successful. Another user had bank cards in his phone case, so he initially did not expect the phone to scan the chip. However, this worked out fine.

Another aspect that came up is that the globe itself did not rotate properly, which kind of takes away from the whole idea of a globe: that people can search for a specific country in a fun way. This was not really the case anyway because there were only two chips stuck on the globe.

Most of the participants (3 out of 5) preferred the way the NFC1 website was designed over NFC2. Among other things, they liked the idea of a slideshow, that different photos immediately pass by. Still, the rest of the participants liked NFC2 more, partly because they could decide for themselves what they saw on their screen, and so that they can quickly navigate themselves. A participant suggested that to raise awareness it is good to first show the various universities and study programs, and then when a university is selected, the stories from students can be found. If a student is curious about the study abroad possibilities, they first want to see where and what can be studied in other countries. This is the priority for students who just want to see what is possible. Another participant suggested to merge both designs into 1 whole. Start with a kind of slideshow, below all the possibilities (and options to filter them), and below that contact details of the study abroad coordinator. The stories of students with experience only come into play when a university / internship is selected.

Not everyone was pleased with the addition of the screen. Someone said: "If I get this information on my phone, I do not want it to have it on a big screen as well." Several participants agreed that it is quite duplication. A participant came up with the idea to use the screen only as a simple slideshow. For instance: how to scan the globe, how to find out more, highlighted locations, etc.

The following additions and revisions should be made for the requirements:

1. Explain how to scan the globe.
2. Explain how to enable NFC on an Android phone.
3. The globe can be rotated in a nice way.
4. There are enough chips to scan.
5. There should be filtering options on the website.
6. It is immediately clear on the website what the options for studies / internships are for students.
7. The screen should display different content than what is shown on the mobile website.

4.3 Materials

The prototype requires a number of materials and software, which need to be researched. A distinction is made here between the materials for realizing the globe (and the further physical installation), and materials that are necessary for making the website.

4.3.1 Sensor technology

Scanning countries, and transmitting data over short ranges, can be done in different ways. The technologies that are currently mainly used for this are Bluetooth, QR, NFC and RFID. It has been investigated which of the following technologies is most suitable for this design.

Bluetooth is a widely used technology to quickly share data within a relatively small range (<10m) without an internet connection. This is often done between two electrical appliances. The devices must first pair with each other before a connection can be made. This ensures that it is a relatively secure connection. A disadvantage is that a Bluetooth chip is quite expensive and must be connected to power. Also, the range is not very precise, and the connection is easy to disrupt [22].

A QR code resembles a barcode, and is easy to scan with a mobile phone camera. After scanning, the linked content will quickly appear on the phone screen. QR codes are used for everything, and can be seen a lot in everyday life. Many people therefore also know how to scan the code, although it does take quite a while to start the camera application on your phone and to get the code sharp. Another disadvantage is that QR codes are not completely secure and the codes are sometimes quite large in terms of surface [23].

NFC stands for “Near Field Communication” and therefore works at a short distance (<2cm). An NFC reader (for example a mobile phone) and an NFC tag are required for an NFC connection. The tag requires no power (passive) and is quite cheap. The tag works by means of induction, the NFC chip that is built into most modern telephones, only needs to be held against the pre-programmed tag for a connection. Programming the tag is not difficult, and can be done by means of an NFC reader app on a phone. A disadvantage of using NFC is that not everyone immediately understands that they can hold their phone against it, with QR this is clearer. Also, the NFC chip in phones is not always in the same place, and some people can find it confusing how to hold their phone against the chip for a connection. For example, most Android phones have the NFC chip in the middle, and Apple phones have them at the top of the phone. Also, in Android phones the NFC connection could be turned off, this can be manually turned on again [24].

NFC is an application of RFID. RFID works about the same as NFC, but the biggest difference is that RFID is about storing and sending data in one direction, NFC can go both ways. In practice, this means that if the RFID tag is scanned with a phone, the RFID tag does not return anything to the phone. RFID tags do not have a battery, they receive power from the reader's radio waves. RFID tags are quite cheap, but more difficult to program [25, 26].

NFC will be used for this installation. Both Bluetooth and RFID are actually already excluded because their range is too large. Because NFC has a small range of <2 cm, specific countries/areas can be scanned on the globe, without accidentally scanning another country. Also, an NFC tag is easy to program, and they are available in thin stickers, which is very convenient for placement on the globe.

4.3.1.1 NFC technical tests

The NFC Tags NTAG213 [27] will be used for this project. These are small (2cm diameter) NFC tags in the form of stickers. Tests with these NFC chips indicated that they work properly when placed at least 1.5 cm apart, and that a mobile phone (regardless of brand and type) only scans the chip when it is <0.5 cm away from the chip.

4.3.2 Globe

The sphere that is used as a globe for this installation is a polystyrene sphere with a diameter of 50 cm. The sphere is hollow inside and the edge is 2 cm thick [28]. The sphere is painted with acrylic paint, this paint is one of the few types of paint that works on Styrofoam [44]. The colors blue and green are used to depict the water and the land on the globe.

4.3.2.1 Turning mechanism

In order for the globe to rotate, a number of materials are needed. For the turning itself, a wooden rotating plate with a diameter of 39 centimeters [45] was used. A 3D printed attachment is made for the globe to attach to the rotating plate (Fig. 25). This attachment has a thickness of 2 centimeters and a diameter of 10 centimeters. The top side of the attachment is hollow, so that it fits exactly around the sphere. There are also 4 holes in the attachment, which can accommodate 4 screws.

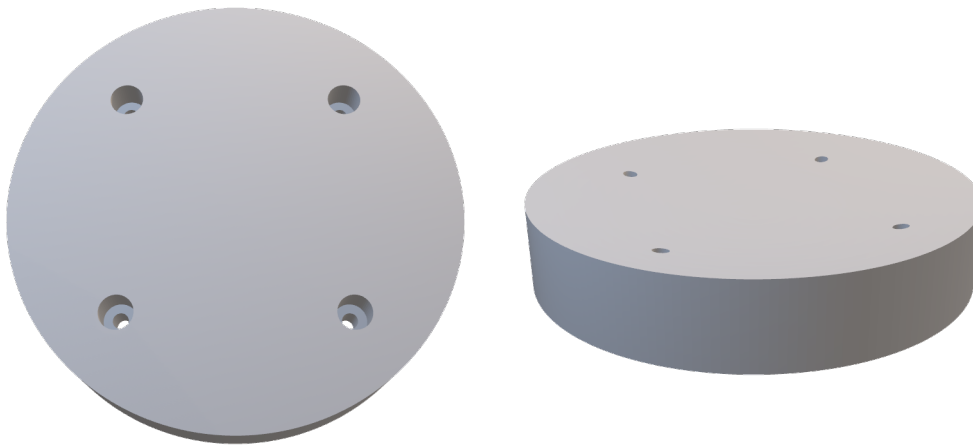


Figure 25: 3D printed attachment from above (left) and from the side (right).

4.3.3 Software

A number of (graphic) software was used for the realization of the screen, the website and other graphic design elements such as the instructions for using the installation.

An online webtool called Wix [32] was used to create the mobile website. In Wix it is possible to build a website, without actually writing HTML and CSS. Furthermore, Wix has an easy way to edit the website as it would look like on a mobile phone.

Procreate is mainly used for editing photos for the website. Procreate is a digital image creation and editing editor developed for iOS, using an iPad with Apple Pencil [47]. In addition to editing photos, this app was also used for making sketches and instructions on how to use the installation.

A few images made with Procreate were later further edited in Adobe Illustrator [48], because Procreate limits in certain areas. For example, it is not possible to add text.

Finally, Canva was used to create the content for the screen. Canva is an online graphic design platform used to create images, presentations, posters, documents and other visual content for social media [49]. In Canva it is possible to create animated posters, which was useful for creating the dynamic content on the screen.

4.4 Realizing sub-systems

The components of this installation can be divided into several sub-systems. A globe needs to be created, instructions, a mobile website and content for a screen. Table 6 shows an overview of these sub-systems. Subsequently, the realization of each sub-system is further described in this chapter.

Domain	Sub-system	Functions
Physical	Globe	To see where in the world the study abroad partner universities are, by scanning the NFC chips attached to it.
Physical / Digital	Instructions	To inform the students on how to use the installation,
Digital	Mobile website	Informing students on the universities / internships that are available for the chosen country.
Digital	Screen	Shows additional information to attract students to the installation.

Table 6: Overview of subsystems with their functions that need to be realized

4.4.1 Globe

The globe was created by painting continents on a Styrofoam sphere with a diameter of 50 cm. This was done with acrylic paint. Painting the correct proportions of the continents is done by observing Mercator projection [29], a cylindrical map projection. Before the styrofoam sphere was painted with acrylic paint, a few layers of gesso were applied to prevent the relief in the styrofoam from showing through. Gesso is a chalk background used by artists to prepare a material for painting [30].

After painting, the NFC chips were placed on the globe. These were placed tactically, so that there was at least one and a half centimeters between two chips. Although the NFC chips were stickers, it has been necessary to stick them to the globe with extra glue. The glue that was used for this is called "Bison Alleslijm" [46].

The rotating mechanism was created by attaching the rotating plate (with a diameter of 39 cm) to the globe. The plate has been turned upside down, making the smaller bottom now the rotating top for more stability when turning the globe. The 3D printed attachment and the globe is mounted on the rotating plate by drilling 4 screws through the inside of the sphere, into the 4 holes of the attachment. The screws were long enough that they also came through the wood of the upper plate, and thus also fasten the globe and the attachment to the plate. To make the sphere rotate better, more weight has been added in the hollow sphere. The final version of the globe with rotating mechanism is shown in Figure 26.



Figure 26: Final version of the globe with turning mechanism

4.4.2 Instructions

The LoFi prototype test showed that it will not be immediately clear to every user how the installation should be used. One cannot immediately tell from the dots on the globe that they are chips. Even if the dots are seen as for chips, users probably do not know how to scan them. This was also shown by the test with the Lo-fi prototype. Instructions are therefore necessary to demonstrate how to use the installation. It was decided to do this visually using photos instead of text. Research shows that visuals transmit messages faster, improve comprehension, and motivate learners [37]. The instruction of use is presented chronologically (Fig. 27).

In addition to these instructions, instructions are also needed for the actual scanning of the chips, as the NFC scanner in phones is not in the same place. A distinction is made between Android and Apple phones. This way the user knows how to hold the phone against the chip for a connection, and prevents lot of searching work. These instructions are also visual using pictures (Fig. 28).

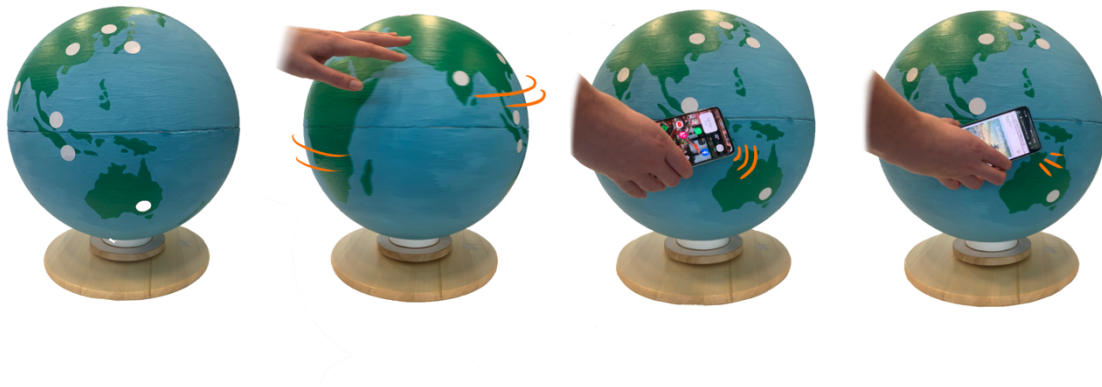


Figure 27: Chronological instructions for using the globe

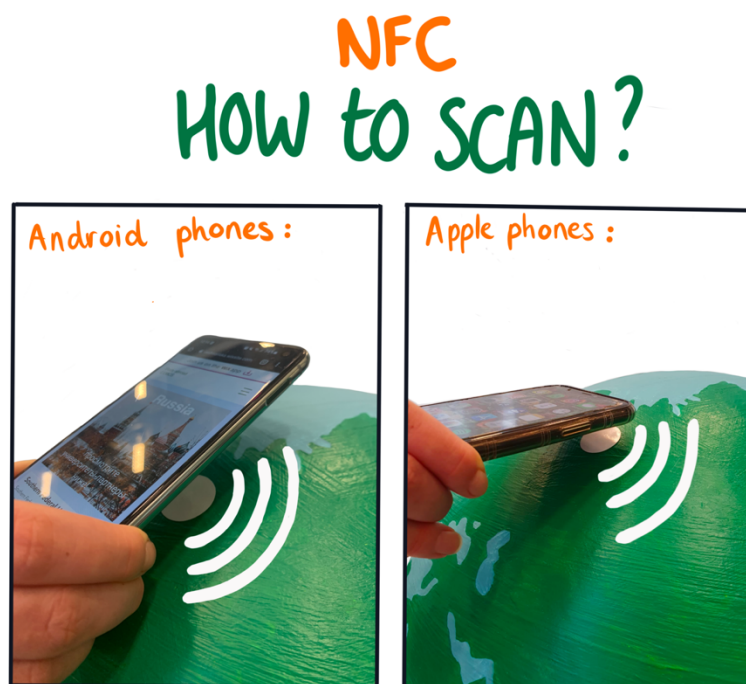


Figure 28: Instructions on how to scan the NFC chips on the globe with Android and Apple phones

4.4.3 Mobile website

When creating the mobile website, the way in which users can navigate through the different pages was elaborated first (Fig. 29). After scanning the desired country on the globe, the user will arrive at the homepage of that country. The page presents an overview of all partner universities that that country has. Then the user chooses one of the universities for more information. Here they can click through to the full student story, but there is also an option to go back to the homepage of the selected country. The menu can be clicked at any time and gives an option to view another country. When a country is selected, the user is returned to the home page of this country. In the menu there is also the option to see more information and there is an option for contact. In this chapter Japan is used as the sample country, but every country that can be scanned has a similar design.

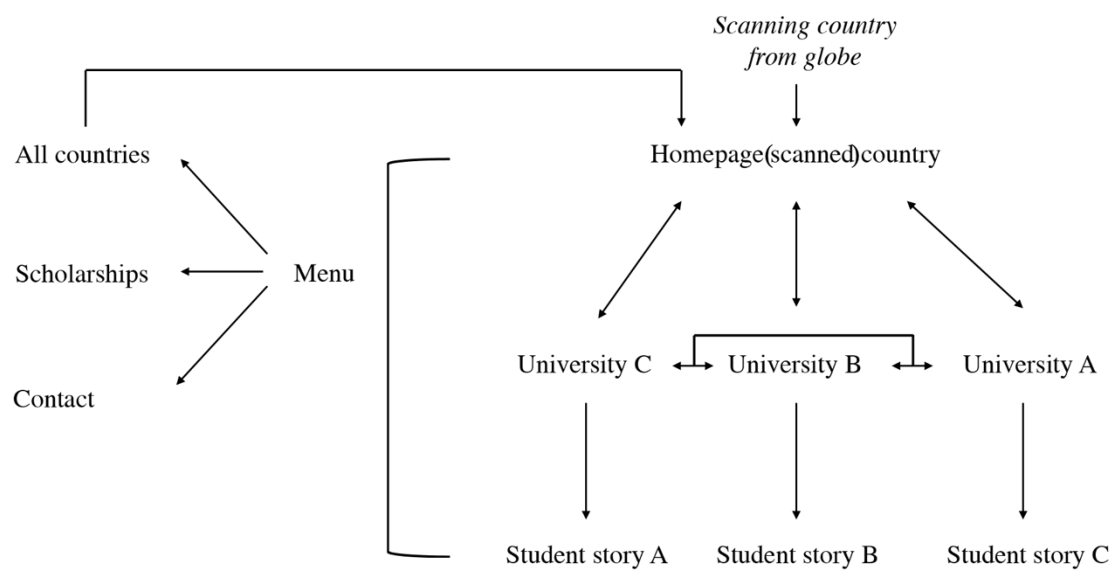


Figure 29: Navigation scheme for the mobile website

4.4.3.1 Style

The same style is used for all web pages. The color scheme is white, dark green and light blue. These colors correspond to the colors chosen for the globe, so it is more like a whole. A structure with square “blocks” is mainly used, which makes the website look simple and well-arranged.

4.4.3.2 Homepage

The homepage of a scanned country (Fig. 30) first has a nice picture of the country itself. For each country, the name of the country is shown at the top of the photo, and below is a welcome message in the language of the country. The partners are shown below with the logos of the universities next to the text. Below the universities is a map showing the partners. When users click on these universities on the map, they are redirected to the university specific page.

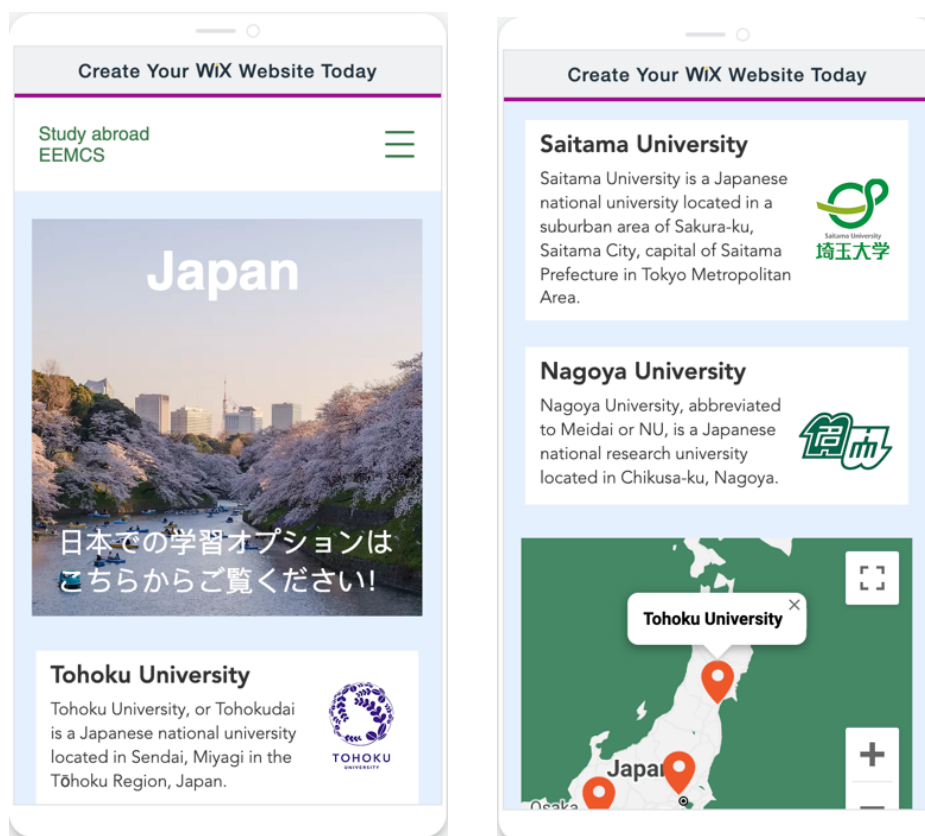


Figure 30: Homepage scanned country

4.4.3.3 University page

A photo at the top of the page has once again been used for the university-specific webpage (Fig. 31). Below is a link to the study abroad page of the university itself. Next is some text about the university. In the next block, useful information is displayed with information about, for example, which criteria students must meet in order to be selected. An experience story of a student who has been to that university is described in the block below. It starts with a quote, the piece of text that follows is cut off at some point. A photo of the student has also been placed next to it to make it a little more personal. Below this experience story there is a small block of information on what to do if you have become interested or want to know more. The webpage ends with links to the other universities in the scanned country.

After the first evaluation (described in chapter 5), it appeared that students wanted to see a clear course list on the website. This has been adapted as the second iteration of the website. Placing all courses on one page can quickly become confusing for some universities, due to the many courses they have, but this is solved with the help of pull-down menus (Fig. 32).

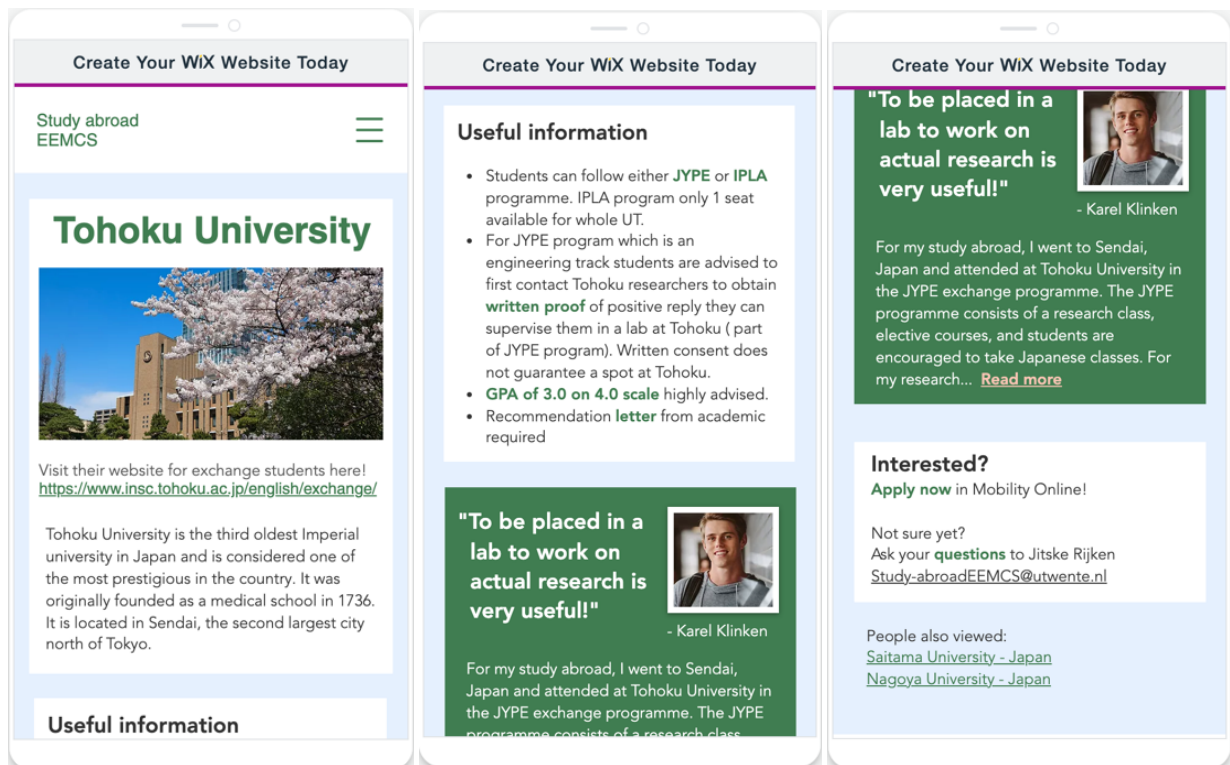


Figure 31: Location specific webpage

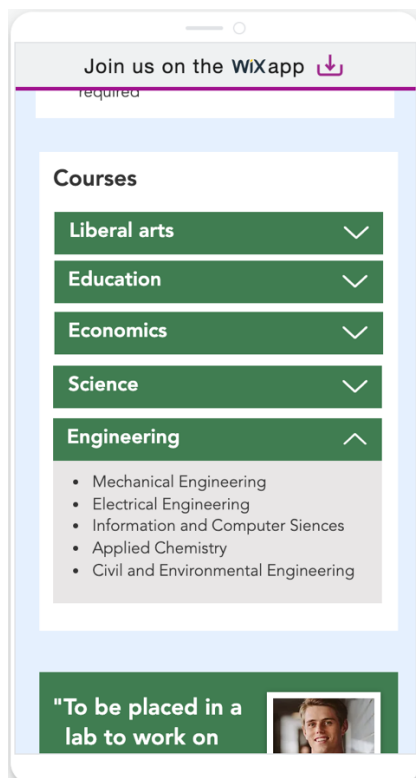


Figure 32: Drop-down menu for courses in mobile website

4.4.3.4 Other pages

In addition to the homepage of the scanned country and the webpage of the chosen university, the menu contains an overview of all destinations, additional information, and contact details of the study abroad coordinator (Fig. 33). These 3 pages have been kept simple for overview. Viaa would have liked to see more information about scholarships. This could easily be added to the info page.

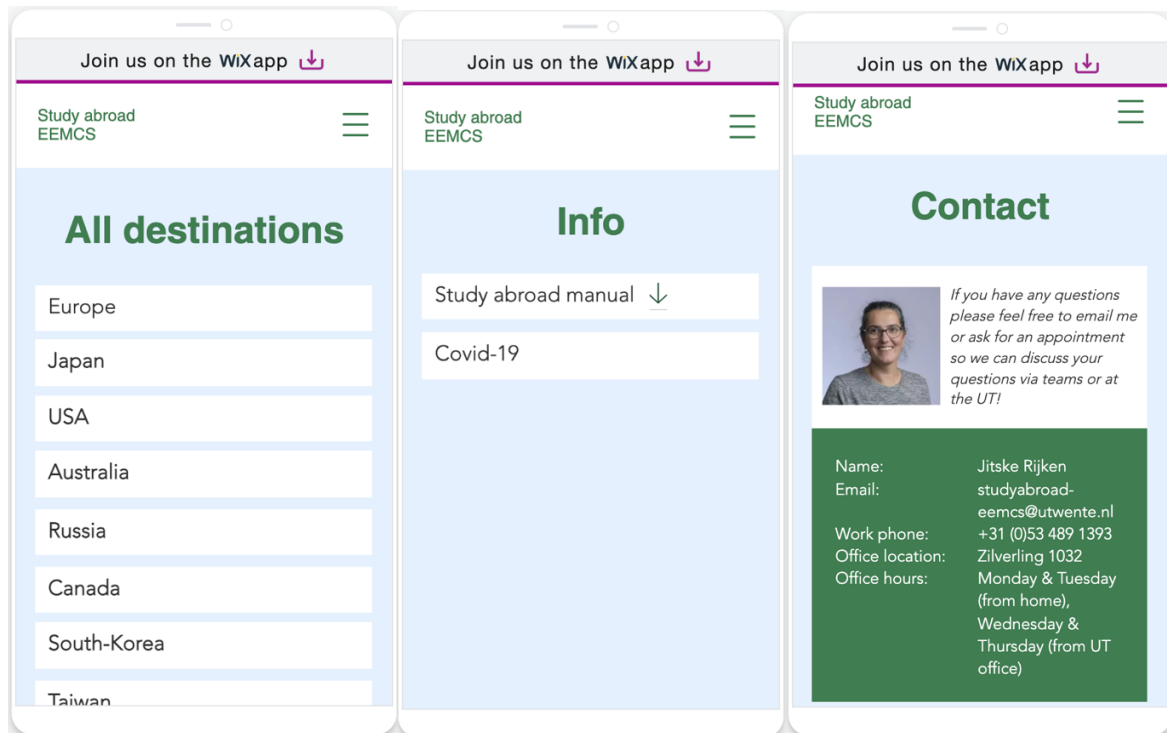


Figure 33: Overview of all destinations, additional information, and contact details of the study abroad coordinator on mobile website

4.4.3.5 Europe

Because the UT has many partner universities for Europe, and Europe has a relatively small surface area on the globe, it is not possible to have an NFC chip per country. That is why initially for the first user test one NFC chip was placed in Europe. When this chip was scanned, the user was taken to a page where an overview could be downloaded of the universities in Europe that offer study abroad (Fig. 34).

The results of the first user test showed that the participants found it annoying to download the file, they would have preferred to see a different kind of overview. This has been solved with an iteration where after scanning, the NFC chip for Europe shows an interactive map of Europe, where students can still search for partner universities in a fun, interactive way (Fig. 35).

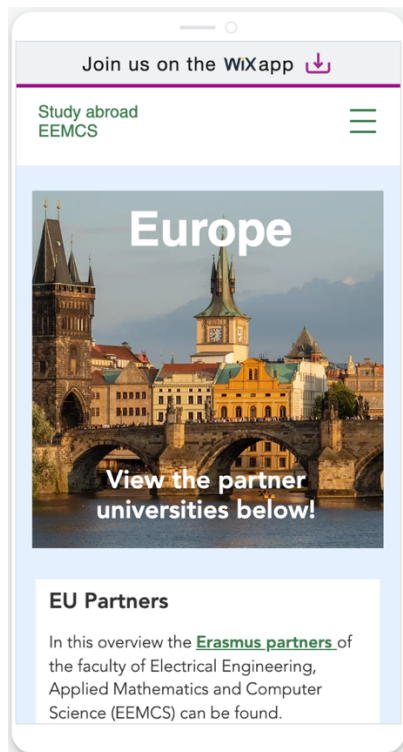


Figure 34: Europe webpage on mobile website before evaluation

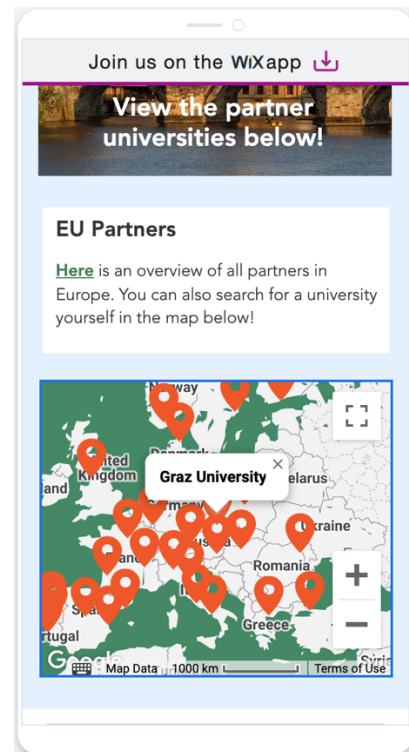


Figure 35: Europe webpage on mobile website after evaluation

4.4.4 Screen

Initially, it was intended that information about the scanned country would appear on the screen, mainly to draw students' attention to the installation. However, the test of the Lo-Fi prototype showed that this does not necessarily attract attention, and is a bit redundant. The information is already on the mobile phone anyway, so it must be different and simple content. The purpose of the screen is now limited to only attracting the attention of students, informing is done via the mobile website. This has resulted in an image with a moving globe with a simple, but large text: "Where to study abroad?". This way students can immediately see what the installation is intended for (Fig. 36).

After the first user test, it turned out that the screen does not add much. The globe itself stands out enough, the students see the screen later. This resulted in the screen being omitted in the iteration.

Where do you
want to
**STUDY
ABROAD**
???



Figure 36: Screen image with moving globe

4.5 Evaluating based on functional requirements

Based on the concept created, it was checked whether all functional requirements have been implemented. This is shown in table 7 using the MoSCoW method [40].

No.	Requirement	Priority	Requirement implemented?
<i>Globe</i>			
1	The globe must direct to a mobile website after scanning the corresponding NFC chip.	MUST HAVE	YES
2	It should be possible to rotate the globe	SHOULD HAVE	YES
3	The globe must be able to rotate smoothly	SHOULD HAVE	YES
<i>Mobile website</i>			
4	The mobile website should have an option for the students to filter the partner universities based on their current study.	COULD HAVE	NO
5	The website contains information about the study abroad options per country.	MUST HAVE	YES
6	Via the menu there is the possibility to find other countries without having to scan them first.	SHOULD HAVE	YES
7	It should contain information about scholarships and student experience stories.	SHOULD HAVE	YES
8	It should display information about the contact person (study abroad coordinator).	MUST HAVE	YES
9	There are click-through options for obtaining more information on a specific topic, but the important information is on the first page.	SHOULD HAVE	YES
<i>Screen</i>			
10	The content should be displayed as a slideshow.	SHOULD HAVE	NO
11	There must be an explanation of how the countries can be scanned.	MUST HAVE	YES
12	There should be an explanation about enabling NFC on Android phones.	SHOULD HAVE	NO
13	It should show content like recommended universities, news, deadlines	SHOULD HAVE	NO

Table 7: Evaluation based on functional requirements

As can be seen in table 7 most of the requirements have been implemented, but there are a few exceptions. Requirement 4 was not implemented because this was technically difficult to achieve, and because in the case of the University of Twente there were no universities that

students could not attend with a specific current study, so a filter option would not add much. With regard to the screen, it turned out during the realization and during the first user test that it does not add much to the installation, so the screen was left out in the final design. The instructions showing how to use the globe are designed, but are not displayed on the screen.

5. Testing and evaluation

The product made in the realization phase is evaluated in this phase. This is done through user testing. This chapter first describes the adjustment made when testing UT students instead of Viaa students. Then it describes the original test. This test had two goals: to answer the research question and to improve the product usability. The results of this test are therefore subdivided into a summary of findings on “Usability”, getting and retaining attention, providing and exploring information, and creating awareness. Based on the results, a test iteration was conducted, of which the results are also described. The chapter ends with an evaluation of the non-functional requirements.

5.1 Viaa / University of Twente

Ideally, the evaluation would have been at Viaa, and it would have been evaluated with students who actually go to school there. The final product would have the design and information specific to Viaa. Because it is now not possible to test on location due to the Covid-19 measures, evaluation is being done as an alternative at the University of Twente, with its students. The product must be adapted to this environment and will therefore contain information for the evaluation about the possibilities for study abroad applicable for students at the University of Twente. Information that can be obtained must appeal to the students. A student at the University of Twente will not easily become enthusiastic about the study abroad options for Viaa University of Applied Sciences. By adapting the design to the University of Twente, the test results remain somewhat reliable, and the research questions can still be answered. Of course, the students who study at Viaa University of Applied Sciences are slightly different from the students who study at the University of Twente. Students at the University of Twente (WO) generally follow a technical education, students who study at Viaa (HBO) are more in the field of social studies. Both groups of students have a possible need to go abroad during their studies, so there are not much differences in that area.

The design specific for the University of Twente will be different in a number of ways than if it were designed for Viaa. The globe will not show the partner universities of Viaa, but for the University of Twente. For example, the globe now has NFC chips in places like Australia and Japan, where Viaa has no partners. The mobile website now contains information about the partners of the University of Twente. It's all pretty similar to what the design would be for Viaa, just the information and partners are different. There is currently no option to filter by internship or study, because unlike Viaa, the University of Twente focuses less on internships in the bachelor's program, and it is therefore less interesting for the participants in the evaluation. Just like the design specific to Viaa, the screen will show how the globe should be used. In addition, it will display slightly different content focused on the University of Twente.

5.2 Test set-up

The test was set up in the middle of a large space in the University of Twente. Figure 37 shows how the globe, screen and figures were placed. The user testing was done with 11 random students from the University of Twente who walked around in an open space, where an event took place organized by a study association. All these students were in their 1st, 2nd, or 3rd year of their bachelor's degree.

The sessions started with a short explanation of what the research entails, the purpose and aim of the research and what data is needed from the participating student (and how this will be used further in the research). Subsequently, the information brochure and the consent form were handed over to the participant to sign. The participants were then asked to use the installation for a while. The researcher observed and took notes. Any questions from the participants were answered, but the researcher gave no further instructions. When the participants lost interest or when the researcher stopped the interaction after about 5 minutes, the participants were asked several questions in the form of a semi-structured interview [bron]. Questions were answered about technical aspects, whether the installation attracts attention, the information that can be found on the website, and whether the installation raises awareness among students about a study abroad. The interview was recorded with the consent of the participants, so that it could be properly transcribed. These recordings were deleted after transcribing. After the interview, the participants were thanked, and they had the choice to stay informed about the research.

The complete details of the test procedure and associated questions can be found in the Appendix.



Figure 37: Test set up during the user tests

5.3 Questions

An overview of the questions asked are shown in table 8. The questions related to either the usability of the concept or the research question. In addition to this structured list of questions, further questions were asked during the interviews based on the answers of the participants. An overview of all interviews and additional questions can be found in the Appendix.

	Interview question	Research question / usability
1	Do you study here? If yes, what year of study are you in?	RQ
2	What kind of phone do you have?	Usability
3	How much did you already know about the possibilities the university offers to study abroad?	RQ
3.a	Have you ever signed up for a study abroad?	RQ
3.b	How was that for you?	RQ
4	What did you think when you saw the installation?	SQ1
4.a	(for the students who were asked to participate) Would you interact with the installation if I did not ask to participate in my research?	SQ1
5	What caught your attention earlier? The screen or the globe?	SQ1
5.a	Do you think the screen has an added value? Why/why not?	SQ1
6	Was it clear how to use the installation?	Usability
7	Were there any problems when scanning the chips on the globe?	Usability
8	How many countries did you scan?	SQ1
8.a	Why did you scan multiple countries?	SQ1
9	After scanning you were led to a website, did you find the information you were looking for?	SQ2
9.a	What kind of information did you miss?	SQ2
10	Have you learned something new about studying abroad?	SQ2
11	(only for students who have never been or not yet registered for a study abroad) Would you now have more motivation to delve further into a study abroad?	SQ2
11.a	Would you know how to do that?	SQ2
12	(for students who have already registered or have already been for a study abroad) How would you compare the installation with what the UT currently has in terms of resources to create awareness among students?	RQ
12.a	What works better for you and why?	RQ
13	Would you like to say something more about the installation?	RQ

Table 8: Overview of questions asked during user tests

5.4 Results

Because the number of testers is small, this test yielded qualitative results rather than quantitative results. The results of the user test are divided into a summary of findings on

“Usability”, and 3 topics, based on the research questions: getting and retaining attention, providing and exploring information, and creating awareness.

5.4.1 Summary of findings on “Usability”

Scanning the NFC chips went well for most of the participants. All 9 participants (eventually) were able to make an NFC connection with their phone without the help of the researcher, and were successfully forwarded to the website. There is no clear relationship between phone type and scanning issues. What was striking was that Apple users knew more quickly how to scan and where the NFC scanner was located in their phone. This is probably because the place where the NFC scanner is located in Apple devices is universal. The Apple users who participated in this user test also say that the image of “How to scan?” helped them a lot. A number of Android users were therefore confused, because for them the NFC was not always in the middle of their phones, but in a different place. With 2 participants it happened that the NFC connection did not work immediately, the participants thought that this was due to the thickness of their phone case (and the cards that were in between). They removed it, after which the NFC connection did come through. Only one participant had to manually turn on NFC in his Android phone. This was done easily and quickly for the participant, and the researcher did not have to help in any way.

Forwarding to the website went smoothly for all participants. Apple users got a pop-up that they can click on, and Android users are immediately redirected. One participant noted that it was inconvenient that the phone first had to be unlocked before an NFC connection could be made. Another participant found it annoying that every time a new country is scanned, a different tab is opened on their phone.

The website generally worked technically well. Several participants noticed that the website was missing a few pages. When they clicked on a particular university for more information, they were redirected to information that was not important to that university. Another technical flaw was that a downloadable information sheet was not available to every participant.

5.4.2 Getting and retaining attention (SQ1)

Various results have emerged from the user tests that indicate to what extent the globe attracts students and to what extent the students retain attention.

Many of the students came to participate in the user test themselves without being asked by the researcher. The main reason they gave was that they were attracted to the installation by the colors and the size of the globe. The participants indicated that they quickly had the inclination to turn it on for a while. Observations have also shown that this is the first thing the students did when they approached the globe. The participating students also indicated that the globe attracted more attention than the screen next to it, because the globe is larger and invites to touch. Many participants say that the screen has no real added value, besides that the text “Where to study abroad” made it easier for them to know what information they could have expected.

Once the participating students interact with the installation, the attention is well retained. They have all scanned multiple countries, some even all countries. The motivation

for this was mainly that the students did not know that the university had connections with these countries, that they wanted to know where they could all go, that they wanted to see the welcome texts change language, and what the universities looked like. The students indicated that they also liked doing the scanning, that it was more fun than navigating the website to another country.

5.4.3 Providing and exploring more information (SQ2)

To answer SQ2, it must be checked whether the installation provides sufficient information, and whether students have taken in new information about studying abroad.

The students who tested the installation say that they generally found the information on the mobile website useful. It is the information they would also expect to be on the website. The majority think that there is nothing lacking in information, but they would like to see a few extra things. Someone suggested that it would be nice to have a list in which the subjects are clearly marked. The participants also found it important to be able to quickly see whether they have the right requirements to be admitted to the chosen university.

What was striking was that very few participants had learned anything new about study abroad. This was mainly because they had already done a lot of research themselves, or that they had already gone through the process of applying for study abroad. There were also participants who did not necessarily want to study abroad. It was nice for them to take a look at all the possibilities that the university offers, but the information itself was less important to them.

5.4.4 Creating awareness (RQ)

It is difficult to say whether the installation actually creates more awareness among students for studying abroad, since many of the participants in the user tests already knew a lot about studying abroad. There is therefore a connection between this prior knowledge and the extent to which awareness is created. These students still had the same motivation, or were not motivated to study abroad after interacting with the installation.

However, a few participants had not really looked into studying abroad yet and stated that they have gotten a better idea of what is possible and what is not. These participants say they have received more motivation to delve into it even more. The participants who thought they already knew a lot about the study abroad option, learned more new things, which gave them more motivation to find more information about the further steps.

5.5 Test iteration

The user tests yielded a number of results on which an iteration has been done. The adjustments were small changes that could potentially make a big difference. That is why it was decided to do a small, second test as an addition. All adjustments and why they have been changed can be found in table 9.

This iteration was tested in the same place where the original user test was done. The procedure of the iteration's test is almost identical to that of the original user test, except that students were now asked to complete an online survey with questions (which also correspond to the questions of the original user test). This was done because it saves time and allows

students to interact more quickly with the globe. It is also interesting to watch from a distance how the students use the installation without any explanation. The survey with the questions that were asked, and the corresponding answers can be found in the appendix.

A student who also participated in the original user test participated in a semi-structured interview to compare both installations. The questions and answers of this interview can also be found in the appendix.

Adjustment	Reason
Omitting the screen.	The screen does not stand out enough and does not really add value. The screen also takes up more space, preventing people from seeing and using the globe from all sides.
Omitting the plate behind the globe.	The instructions for use that were placed on this plate were a little too hidden behind the globe. Also, the globe cannot be seen from every side.
Omitting the platform where the globe is on.	To see if this causes problems when scanning (for example because people are less able to reach the bottom countries).
Adding instructions that go around the globe.	So that the globe can now be used from every side, and several people can use the globe at the same time.
Adding courses for the corresponding universities on the website.	So that students can immediately see whether this university is focused on their area of interest.
Adding multiple countries for Europe instead of a standard document where every university is listed.	Because there are many partner universities in Europe, and students are interested in this.
Correcting some minor technical defects.	Improves usability.

Table 9: Adjustments made after user testing

5.5.1 Set-up

A different layout has been made for this set-up than for the original test set-up. The globe is placed in the middle of a table in these tests, so that it can be used from almost all sides.

Around the globe an explanation is given in pictures of how the installation should be used.

These pictures are the same as the pictures in the original test, but around the globe, so that it is visible from all sides. On one side, this can still be seen in large format, with also a QR code that refers to the online survey. Figure 38 shows how all parts are placed.



Figure 38: Test setup of iteration

5.5.2 Results

A total of 7 students completed the online survey. The results are very similar to what was stated earlier in the user test of the original design. It is striking that only one student in this group of students has experience with registering for study abroad. In the interviews of the original design, this number was a lot higher. This makes the test more interesting because this group can still be encouraged to go abroad. Good results have been achieved in the field of usability. None of the 7 participants had any difficulty with scanning, and no one experienced any problems with the website. All participants knew how to scan based on the pictures with explanations. There are also several answers from the survey that stand out. 2 participants wrote that they scanned the chips because they wanted to know what would happen. They had no idea beforehand that it was about studying abroad. That should be stated better. Several students indicated that the motivation for interaction was that they wanted to know whether the globe could rotate or not. In total, 5 students say they are more motivated to study abroad after using the globe.

The interview with a student who also tested the original design gave some interesting results. The student says that there is potential in the circular explanation around the globe, but that it was too small to read. The explanation does not have to be on an added screen either. The student thinks it is a good choice to omit the screen completely because it does not add much to the installation. It would still be worthwhile to put the text “Where to study

abroad” somewhere conspicuous, so that the students know a little bit about where the globe is about before interacting with it. The student also said that she was satisfied with the way in which the countries in Europe are now displayed, but that it is a pity that there are no multiple countries that can be scanned for Europe on the globe itself. This ensures that students who are only interested in a study abroad in Europe, do not get the experience of playfully discovering which countries they can go to.

Furthermore, interesting things were observed by observing the participants. What was striking was that students mainly came in groups to look at the globe. From a distance, the groups of students could be seen talking to each other about the globe. Rarely has anyone interacted with the globe alone. This is a favorable result, as Viaa values solidarity and cooperation. What was also striking is that when the globe was set up at the beginning of the day, many students immediately came to watch, but that the students became less interested over time, and the number of interested people decreased. This is a pity, but also not surprising since the students who are not initially interested, will not suddenly be interested at the end of the day. Not many new students entered the space during the day.

5.6 Evaluating non-functional requirements

Table 9 has been made to check whether all non-functional requirements have been met. All requirements have been met, except for the requirements of the screen. The screen has been omitted because user tests have shown it to be redundant and prevented people from using the globe from all sides and with multiple people.

No.	Requirement	Priority	Requirement met?
<i>Globe</i>			
1	Must attract students.	MUST HAVE	YES
2	Every chip must be easily reached by users with their mobile phone. Chips should not be placed too high.	MUST HAVE	YES
3	Must be appealing: it is recognizable as a globe, the counties need to be recognizable, and the colors are logically chosen.	SHOULD HAVE	YES
4	Must be able to be used by several people at the same time.	SHOULD HAVE	YES
5	Must be easy to interact with.	SHOULD HAVE	YES
6	Interacting should not take too much time	SHOULD HAVE	YES
7	It must be clear how to interact with the globe	MUST HAVE	YES
<i>Mobile website</i>			
8	Must be appealing: the colors are nice, photos are used, there is coherence.	SHOULD HAVE	YES
9	It should be easy to navigate through the website.	SHOULD HAVE	YES

10	Must inform students about the possibilities for study abroad.	MUST HAVE	YES
11	Must give students an idea of what the next steps are for an application and where they can go for questions.	MUST HAVE	YES
<i>Screen</i>			
12	The content and information shown on the screen is not identical to the content found on the mobile website.	SHOULD HAVE	NO
13	It should contain dynamic content such as videos and animations that explain what the installation is about.	COULD HAVE	NO
14	Must attract students.	SHOULD HAVE	NO

Table 10: Evaluation of non-functional requirements

6. Conclusion and discussion

This research was commissioned by Viaa University of Applied Sciences, with the aim of creating awareness among its students for studying or doing an internship abroad. Initially, the intention was to design study abroad content for an interactive touchscreen, but research has shown that having a digital screen as a means of attracting the attention of passers-by is not always effective. In addition to concepts for an interactive touchscreen, concepts have therefore also been devised for a physical installation (as a supplement to the screen) that informs students about the study abroad possibilities of the Viaa.

In addition to doing research on how to get the attention of students, a user-centered design approach has been applied to take into account the needs and wishes of the stakeholders. This was done by conducting interviews with students and the people of Viaa. The results of these interviews were then included in the design.

With the knowledge gained from the research and the interviews, an interactive globe was designed. The countries on this globe can be scanned with a mobile phone by holding it against the NFC chips that are attached to certain countries with which Viaa has connections. After scanning the chips, the student will arrive at a well-organized website where more information can be found about the various universities and internships. This website also contains stories from students who have already had experience with studying abroad, and students are encouraged to take the following steps if they are motivated to actually do a study abroad.

The results of the evaluation have shown that the installation is a promising concept. Awareness among the students about the study abroad opportunities at the university is created when they look at the installation, and / or interact with it. The installation attracts the attention of students: the globe stands out because of its size and colors, the students are curious about whether the globe can rotate, and the students are curious to know what happens when they scan the countries with their phones. Almost every student who walked past the installation pays attention to it. Even if it is just a quick look, it already raises some awareness. The installation also attracts the attention of groups of students. It is possible to use the installation with a number of people at the same time. This also has a positive effect on creating awareness, because students can tell each other new things and project their enthusiasm onto each other. The installation and the accompanying mobile website also ensure that a student can find all the necessary information. Because students scan the countries on the globe with their mobile phone, they always have the necessary information with him, and it can always be looked at again when it suits the student. In this way it is also possible for students to take their time for it, and they do not have to stand near the globe for long. The mobile website includes information about the universities students can go to, the courses they can choose, the admission requirements that need to be met, and information about how to contact the study abroad coordinator. The students who tested the installation were very pleased with the amount and types of information that could be found on the website. They believe that it helps them to create an overview, and that they know better what everything entails and what the possibilities are. By providing more information after

scanning the globe, and by attracting the attention of students, this concept will give more awareness to students about studying abroad.

6.1 Discussion

While the concept is promising, there are also a number of aspects that could have made the research less reliable. One of the main reasons for this is the situation regarding Covid-19, but other factors have also played a role.

First, this research is focused on the University of Twente (UT) instead of on the Viaa University of Applied Sciences, which could make a difference to the test results. Students from Viaa receive different prior information on study abroad opportunities than the students at the UT. At Viaa, the students probably received a different kind of prior knowledge than the students at the UT about studying abroad, and we do not know to what extent a physical, interactive globe will help them to create more awareness. The students studying at Viaa are also slightly different from the students studying at the UT, they study in a different field and are on average slightly younger than the students at the UT, which makes that the concept has been tested with a slightly different target group.

Second, the tests were conducted with a small number of students, because a lot of students were still working from home due to Covid-19. When testing on location (University of Twente), it was therefore difficult to find a room full of students who were willing and able to participate in the research. It therefore does not represent the situation it would have been without Covid-19.

Third, the user tests were conducted one week after the registration date for the new study abroad semester. As a result, many students did already some research on the countries they could go to, and many students had already made a choice whether to study abroad or not. This probably also caused many students to report that they had not learned much from the installation and website.

Finally, contact with Viaa was fairly lost during the brainstorming phase. Viaa's original assignment was to design a screen for a display in order to create awareness among students for a study abroad. There has been some contact when brainstorming about the screen, but the transition to a physical way to create awareness without the help of a screen has not been discussed with Viaa. Additionally, Viaa did not to give feedback about the final design, and it was therefore no longer adapted to their wishes.

6.2 Future work

Although the concept already appears to work quite well at the UT, it is still questionable whether this will also be the case at Viaa. This has to be tested in the future. The globe itself would then have to be slightly modified, namely by sticking the NFC chips on the countries that are partners of Viaa. The mobile website will also have to be adapted more with Viaa-specific information. Furthermore, the layout of the website can simply remain the same.

When the concept was really put into use, a few things would have to be reinforced. At the moment the concept is really still in the prototype phase, which means that it works, but could use some reinforcement here and there. The globe itself, for example, is quite easy to break and dent, because there is no protective layer around it. For the mobile website, some pages contain some standard information, copied from Wikipedia, or some pages are

still a bit on the boring. Now the website is made with Wix [32], but this could be realized in the future with a different kind of web technology. When the concept is actually put into use, these adjustments can easily be fixed.

An installation such as in figure 19 could also be built as a future work. This is in conflict with the results of the user tests that a screen is superfluous, and one cannot use it from all sides. A different kind of installation as in figure 39 could then be made. This also takes up very little space and does not have to be on a separate table.

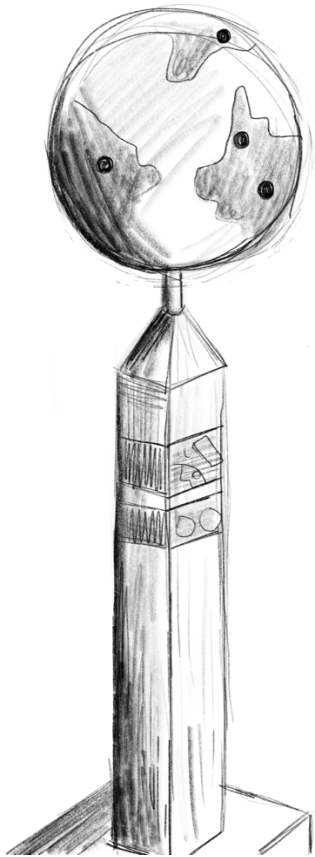


Figure 39: Future work installation concept

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University of Hong Kong: <https://intlaffairs.hku.hk/>

Appendix A: Semi-structured Interviews User-Test

1. Studeer je? Zo ja, in welk studiejaar zit je?

(Tester 1) Ja, ik studeer en ik zit in mijn 3^e studiejaar.

(Tester 2) In mijn eerste jaar.

(Tester 3) 3

(Tester 4) Ja, 3

(Tester 5) Ik zit in mijn 3^e studiejaar.

(Tester 6) 2^e jaar

(Tester 7) Ja, in mijn 3^e jaar.

(Tester 8) Ja ik studeer Creative Technology ik zit in studiejaar 2

(Tester 9) Ik zit in mijn 1^e studiejaar

2. Wat voor telefoon heb je?

(Tester 1) Een Samsung A52, dat is Android.

(Tester 2) Een Xiaomi telefoon, gewoon Android.

(Tester 3) Een Iphone 11 denk ik.

(Tester 4) Samsung Galaxy 10E

(Tester 5) Samsung S10

(Tester 6) Ik heb een Samsung telefoon

(Tester 7) Een Iphone XR

(Tester 8) Ik heb een Iphone 8

(Tester 9) Ik geloof een Iphone 13

3. Hoeveel wist je al van de mogelijkheden die de UT biedt om in het buitenland te studeren?

(Tester 1) Ja persoonlijk best wel veel, maar dat is denk ik vooral omdat ik me eerder ook al voor het programma heb aangemeld, dus ik heb wel research gedaan van tevoren.

(Tester 2) Best veel, ik had van tevoren al bedacht dat ik mijn minor in het buitenland wilde gaan doen, dus ik wilde wel dat ze iets van connecties hadden met het buitenland. Dus daar had ik al naar gekeken bij het kiezen van mijn studie.

Kon je daar veel over vinden?

Wel genoeg, maar de pagina was de hele tijd weg en ik las ook vaak verschillende dingen, dat vond ik wel verwarrend. Bij sommigen moet je dan een bepaald cijfer hebben en dat soort dingen, toelatingseisen. Dan stonden er GPA cijfers en dan kon ik niet echt zien hoe ik mijn cijfer dan kon omrekenen.

(Tester 3) Ik ben naar de Study Abroad sessies geweest en verder niet heel veel naar gekeken want ik moest een module inhalen dus ik kon niet naar het buitenland.

Misschien dat ik na de zomer ga, misschien dan, maar anders regel ik zelf iets in het buitenland, buiten de studie om zegmaar.

(Tester 4) Ik heb mezelf aangemeld voor Study Abroad in de herfst, dus ik weet wel wat. Maar niet veel, ik heb mezelf niet echt verdiept eigenlijk.

(Tester 5) Ik ben wel aangemeld, dus ik weet het allemaal wel een beetje, maar hoe het allemaal precies werkt en waar ik heen kan, weet ik niet. In Canvas zit ik in zo'n groep, maar ik heb nog niet echt verder gekeken. Ik weet wel dat als ik wat ga doen dat ik dan naar Singapore wil, die universiteit lijkt me wel leuk, maar verder weet ik het niet.

(Tester 6) Eigenlijk nog niks, ik heb er verder ook geen onderzoek over gedaan.

Lijkt het je wel leuk om naar het buitenland te gaan?

Ja dat wel, het is nog wel even kijken hoe ik dat ga doen dan met mijn minor enzo, maar het lijkt me wel leuk.

(Tester 7) Best wel veel eigenlijk, ik heb me zelf al eens aangemeld voor study abroad. Het is wel moeilijk om erachter te komen wat de uni allemaal biedt aan mogelijkheden. Het staat wel half op een canvas pagina, maar het ziet er allemaal niet bepaald heel denderend uit.

(Tester 8) Ik heb af en toe wat emails gehad over study abroad en die ook gelezen omdat ik zelf wel interesse heb in een half jaar in het buitenland studeren.

(Tester 9) Nee, het is mij helemaal ontgaan.

a. Heb je je al eens aangemeld voor een study abroad?

(Tester 1) Ja

(Tester 2) Nee

(Tester 3) Nee

(Tester 4) Ja

(Tester 5) Nee

(Tester 6) Nee

(Tester 7) Ja

(Tester 8) Ik heb me nog niet aangemeld voor een study abroad maar zou dat graag in het 2^e halfjaar willen doen van mijn 3^e jaar

(Tester 9) Nee

b. Hoe was dat voor jou?

(Tester 1) Best wel confusing eigenlijk. Want er is wel een Canvas pagina waar het allemaal op staat, maar dat is gewoon een PDF met alle opties, maar dat is wel een beetje... er zijn allemaal linkjes enzo, er is niet een plaats waar je het allemaal duidelijk ziet en dat vond ik wel vervelend.

(Tester 2) –

(Tester 3) –

(Tester 4) Iemand die ik ken had zich al aangemeld, dus daardoor wist ik een beetje wat de mogelijkheden waren en wie ik moest contacteren voor mijn vragen. Toen heb ik mezelf aangemeld via Canvas, maar daar kwam ik pas achter toen ik zelf echt erachteraan ging.

(Tester 7) Ik heb wel echt alles zelf uit moeten zoeken, dat heeft wel flink wat tijd gekost. Ik had bijvoorbeeld wel interesse in Mexico, maar na heel veel zoeken en tijd erin stoppen kwam ik erachter dat ik daar met CreaTe helemaal niet naartoe kon.

(Tester 8) –

(Tester 9) –

4. Wat dacht je toen je de installatie zag staan?

(Tester 1) Je ziet het natuurlijk van de verte al een beetje en dan denk je van wow dat ziet er wel grappig uit. Speels ook wel een beetje, ik dacht: daar wil ik wel aan draaien! En ja dan loop ik er ook naartoe en dan geef ik er een draai aan. Dan zie je daarna ook dat je het kan scannen en dan ja, dan probeer je dat.

(Tester 2) Leuke wereldbol. Het is best een groot ding!

(Tester 3) Ik dacht echt: wat is dit? Het ziet er echt heel erg leuk uit. Zo'n enorme wereldbol, ik wilde even kijken wat het is. Ik zag hem buiten al! Ik liep er langs zonder dat ik wist dat jij aan het testen was, ik dacht dat jij ook gewoon aan het kijken was wat het nou precies was.

(Tester 4) Ik dacht wow wat is dit? Ik was gelijk geïnteresseerd.

(Tester 5) Ik dacht wat een leuke wereldbol. En ik was vooral benieuwd naar wat die stickertjes erop waren.

(Tester 6) Ik moet zeggen, het is best wel aantrekkelijk. Het is toch wel leuk om naar te kijken en daarnaast is een soort bewegende poster als hier op het scherm ook wel gewoon erg leuk om te zien.

(Tester 7) Wel geinig. Lekker groot ook. Het valt zeker wel op.

(Tester 8) Ik heb hem vaker in de smart xp zien staan en wilde eigenlijk kijken wat het was maar ik dacht dit is een project van iemand dus ik ga er niet aan zitten, daarom durfde ik er niet mee te interacteren. Dus nu je hier stond te testen dacht ik kan kan en mag er mee interacteren, vandaar dat ik op je af ben gestapt.

(Tester 9) Wat zijn de rare witte stippen op die wereldbol?

a. (voor de studenten die er niet zelf op afgekomen zijn) Zou je er op afgaan als ik niet gevraagd had om mee te doen aan mijn onderzoek?

(Tester 4) Ja!

(Tester 5) Ligt eraan in welke context. Als er een conference was met informatie over study abroad, dan wel. Maarja, als het hier zo op een tafel zou staan wel minder snel.

(Tester 7) Ik denk het wel, maar het is op dit moment wel heel erg groots, dat zou me misschien wel een beetje afschrikken.

(Tester 9) Ik had waarschijnlijk wel even gekeken.

5. Wat trok eerder je aandacht? Het scherm of de wereldbol?

(Tester 1) De wereldbol, sowieso.

(Tester 2) De wereldbol.

(Tester 3) De wereldbol. Het scherm zag ik ook niet vanaf buiten.

(Tester 4) Wereldbol, deze is ook groter dan het scherm, maar ook interessanter.

Schermen zie je hier overal wel veel, en zo'n wereldbol is toch weer even een ander gezicht.

(Tester 5) De wereldbol, maar dat is ook omdat ik jou er al een tijdje mee bezig zag.

(Tester 6) De wereldbol zelf.

(Tester 7) 100% de wereldbol, het scherm zag ik echt veel later pas.

(Tester 8) De wereldbol.

(Tester 9) De wereldbol.

a. Denk je dat het scherm een toegevoegde waarde heeft? Waarom wel/niet?

(Tester 1) Ik denk dat het wel meer een toegevoegde waarde kan hebben als er meer uitleg opstaat.

Wat voor uitleg had je willen zien dan?

Misschien een beetje dezelfde dingen die op die papiertjes staan. Want die papiertjes zijn best wel nuttig, maar je kijkt wel eerder naar het scherm dan dat je daar naar kijkt. Je ziet dus eerst de wereldbol, dan denk je oke wat is dit, dan kijk je naar het scherm en dan worden de plaatjes op de achtergrond een beetje vergeten.

(Tester 2) Ja, je ziet wel gelijk waar het over gaat. De wereldbol alleen zou misschien ook iets anders kunnen betekenen, iets over klimaatverwarming ofzo, maar door dat scherm erbij kon je wel gelijk zien dat het over study abroad ging.

(Tester 3) Ik denk dat als dit [de NFC chips] knopjes zijn, dat het dan heel interessant is. Dat je dan die informatie ziet op het scherm. Maarja, eigenlijk de informatie hierover wil je gewoon op je telefoon hebben, dat je het kan bewaren. Maar ook als er veel mensen staan, dat meerdere mensen tegelijk ermee kunnen spelen zegmaar. Ik zou het misschien zelfs wel zonder scherm doen. Of dat het scherm informatie bevat die je normaalgesproken op een poster of iets hebt.

(Tester 5) Ik denk dat het scherm wel duidelijk maakt dat het voor study abroad is, ik denk dat als dat er niet bij had gestaan dat ik niet had geweten waar die wereldbol voor was, dat had voor elk project kunnen zijn. Dat study abroad erop maakt wel duidelijk dat het voor een studie in het buitenland is.

(Tester 6) Het is aantrekkelijk, maar voor de rest geeft het geen feedback of iets. Maar het is wel handig om mensen hier naartoe te leiden.

(Tester 7) Ik denk het wel, om nog extra aan te geven waar de wereldbol precies voor is. Ik zou wel de uitleg plaatjes laten zien op dit scherm ipv zo achter op het bord.

(Tester 8) Als er nog extra informatie opstaat, zoals hoe je de bol moet gebruiken (omdat dat nu op papier dr boven hing). Dan denk ik wel. Maar inderdaad ook om aandacht te trekken inderdaad.

(Tester 9) Het scherm maakt het wel duidelijker waarvoor het is (studeren in het buitenland)

6. Was het duidelijk hoe je de de installatie moest gebruiken?

(Tester 1) Ja, vind ik wel

(Tester 2) Ja, [student] stond er naast en die had het me uitgelegd nadat hij het zelf al gedaan had

(Tester 3) Met de plaatjes, ja. Zonder die plaatjes had ik niet geweten dat ik mijn telefoon er tegenaan moest houden.

(Tester 4) Ja, de plaatjes die erbij hingen waren duidelijk.

(Tester 5) Omdat jij het zei ja, maar als je het niet had gezegd, zou ik ook niet weten dat ik met NFC de wereldbol moest scannen. Mijn NFC stond ook niet automatisch aan, die moest ik eerst zelf nog in de instellingen aanzetten.

Dus de plaatjes hierboven vielen niet op?

Niet genoeg denk ik, ze zijn een beetje verscholen achter de wereldbol.

(Tester 6) Ja best wel, ik moet zeggen als ik dit zo zou zien zou ik best wel in de war zijn, maar door die plaatjes daar achter wist ik wel wat ik moest doen.

(Tester 7) Ja dat wel, daar hielpen die uitlegfoto's wel bij.

(Tester 8) Ja het stappenplan was duidelijk en het was ook niet heel moeilijk

(Tester 9) Ja

7. Zijn er problemen geweest bij het scannen van de wereldbol?

(Tester 1) Nee, het was wel even vinden waar de scanner in mijn telefoon zit, want dat is bij alle Android telefoons ook weer anders. Mijne zit bijvoorbeeld bovenin naast de camera's, maar bij mijn vorige telefoon zat deze precies in het midden van de achterkant. Dus ik moest even met mijn telefoon over de chip om de goede plaats te vinden, maar daarna ging het prima.

(Tester 2) Nee.

(Tester 3) Nee. Ik dacht alleen dat ik iets fout deed toen ie hem niet gelijk pakte. Maar dat ligt misschien ook wel aan mijn hoesje. Soms duurde het even voordat hij hem pakte. Het werkte niet toen ik mijn scherm nog niet ontgrendeld had. Is natuurlijk heel fijn voor de veiligheid, maar in dit geval wil je eigenlijk misschien wel gewoon dat het gelijk werkt.

(Tester 4) Met het scannen zelf niet, maar ik vond het wel vervelend dat er telkens nieuwe tabbladen geopend werden.

(Tester 5) Met het scannen niet, of nouja, alleen dat ik mijn NFC dus aan moest zetten. Verder waren er wel een aantal pagina's die ontbraken, maar verder werkte het prima, ik ging gelijk naar de site.

(Tester 6) Nee, de eerste was een beetje moeilijk, maar het is maar net hoe je je telefoon moet houden. Het was even zoeken naar mijn NFC scanner, maar toen ik dat wist ging het best wel soepel.

(Tester 7) Nee, dat ging best makkelijk. Ik betaal zelf altijd met mijn telefoon en ik weet dat dit ook via NFC gaat. Doordat ik altijd mijn telefoon bij een pinautomaat houd, weet ik nu wel precies waar mijn chip in mijn telefoon zit, dus ik hoefde nu ook niet te zoeken.

(Tester 8) Geen problemen.

(Tester 9) Nee, ging erg soepel.

8. Hoeveel verschillende landen heb je gescand?

(Tester 1) Ik heb ze allemaal gescand.

(Tester 2) Allemaal.

(Tester 3) 3

(Tester 4) Ik denk een stuk of 5?

(Tester 5) 4

(Tester 6) Een stuk of 6 of 7 denk ik wel, misschien wel meer

(Tester 7) Korea, want daar heb ik me voor ingeschreven, en nog 3 andere landen.

(Tester 8) Ik heb alle landen gescand omdat ik het leuk vond om de chips te scannen en dan te zien wat er bij mijn telefoon op popte.

(Tester 9) 4

a. Waarom heb je meerdere landen gescand?

(Tester 1) Ik wou gewoon zien hoeveel universiteiten per land er meededen, en dat was gewoon lekker makkelijk en overzichtelijk te zien, ook zo met die logootjes erbij.

(Tester 2) Voor de leuk.

(Tester 3) Ik wilde zien of er bij andere landen meer mogelijkheden waren. Bij sommige landen was ik benieuwd, omdat ik niet had verwacht dat de UT hier connecties mee had.

(Tester 4) Ik wilde graag de andere webpagina's zien, en ik vond het leuker om te scannen dan via het menu naar andere landen te navigeren.

(Tester 5) Eerst Europa om te kijken wat europa was, daarna Singapore, want daar wil ik gewoon graag heen, en toen Japan want ik weet dat jij naar japan gaat, en toen nog Australie.

(Tester 6) Ik vond het wel gewoon leuk om te kijken wat voor feedback ik zou krijgen, ik vond het leuk dat de tekst daaronder veranderde in de taal van het land waar je dan was, dus dat vond ik ook wel leuk!

(Tester 7) Ik wilde kijken wat er dan precies allemaal veranderde en ik was benieuwd naar hoe de universiteiten in andere landen eruitzagen voor de plekken waar ik niet had verwacht dat de uni daar partners mee zou hebben.

(Tester 9) Om te zien welke landen allemaal beschikbaar zijn.

9. Na het scannen werd je geleid naar een website, stond hier de informatie die je verwacht had dat er zou staan?

(Tester 1) Ja eigenlijk wel, je ziet gewoon de universiteiten waaruit je kan kiezen en als je dan daarop klikt zie je ook dingen als wat voor GPA je nodig hebt, dat vond ik ook wel belangrijk.

(Tester 2) Ja opzich wel.

(Tester 3) Ik denk het wel.

(Tester 4) Ik heb niet heel specifiek naar de informatie gekeken moet ik eerlijk zeggen. Ik denk omdat ik dus ook me al heb ingeschreven voor study abroad.

(Tester 5) Ik had nog niet heel erg gekeken, maar er staan wel gewoon alle universiteiten, als je er dan op klikt staat er meer... maar er staan bijvoorbeeld niet vakken ofzo.

(Tester 6) Uh ja, zover ik wist was het vooral algemene informatie en informatie over de universiteit die je kan bezoeken. Het was wel prima informatie.

- (Tester 7) Ja ik denk het, het was gewoon wel lekker duidelijk, niet te veel poespas.
(Tester 8) Er stond informatie op die ik al wist maar dat is ook wel logisch omdat ik me wel al een beetje had ingelezen. Dus dan is het ook informatie die je daar verwacht.
(Tester 9) Ik wist niet wat ik moest verwachten dus ik denk het wel ja.

a. Wat miste je qua informatie?

- (Tester 1) Als je Europa scande dan is er een link verder naar een lijst, maar het lijkt me ook leuk als je dan net als bij die andere landen een overzicht hebt. Misschien dan ook per land binnen Europa ofzo.
(Tester 2) Ik denk iets van een overzicht met alle toelatingseisen. Een duidelijk overzicht.
(Tester 3) Misschien – ligt er een beetje aan hoe je het zou gebruiken – iets van een filter zodat ik kan zien waar ik met mijn studie naartoe kan. Als ik met Create maar naar een paar landen kan, heeft het voor mij geen zin om landen te bekijken waar ik niet naartoe kan. Dus als er dan al gelijk op de homepagina ofzo daarvoor een filter is, scheelt dat al.
(Tester 5) Een overzicht met alle vakken onder elkaar die je kunt kiezen. Als er gewoon een paar voorbeelden staan, is dat wel handig.
(Tester 6) Wat meer informatie over hoe anderen het beleefd hebben.
(Tester 7) Ik had misschien nog graag iets van een stappenplan ofzo willen zien. Want nu word je direct doorverwezen naar de exchange coordinator, maar ik zou misschien eerst een beetje meer zelf uit willen zoeken van hoe en wat.
(Tester 8) Niet iets wat ik nu kan bedenken.
(Tester 9) Misschien een overzicht van de vakken die je kan volgen.

10. Heb je iets nieuws geleerd over studeren in het buitenland?

- (Tester 1) Uhm, ik persoonlijk niet. Maarja ik heb natuurlijk ook al wel ervaring in dit gebied. Maar ik kan me voorstellen wanneer dit niet zo is, en je ziet dit, dat het dan heel informatief kan zijn.
(Tester 2) Nee, niet echt.
(Tester 3) Paar universiteiten en landen wist ik niet dat ik daar naartoe kan.
(Tester 4) Nee, dat komt omdat ik al research gedaan heb.
(Tester 5) Eigenlijk niet, maar ik was er ook niet echt actief naar op zoek. Maar ik denk als ik rustiger zou kijken naar de universiteiten, dat ik er dan wel wat van zou leren. Want nu ook op Canvas zie je alleen een tekst, verder niks en nu is het wel gewoon overzichtelijker en leuker.
(Tester 6) Ik moet zeggen dat ik er wel snel doorheen ben gegaan, dus niet per se, maar als ik er wat langer de tijd voor had, dan wel veel meer had kunnen ontdekken.
(Tester 7) Nee, ik heb me er dus al flink in verdiept.
(Tester 8) Niet per se geleerd denk ik, maar ik ben wel enthousiaster over in het buitenland studeren.
(Tester 9) Opzich wel. Ik had er nog nooit echt iemand over gehoord, dus ja

11. (alleen voor studenten die nog niet zich hebben aangemeld voor een studie in het buitenland of al zijn geweest) Zou je nu meer motivatie hebben om je verder te verdiepen in een studie in het buitenland?

(Tester 1) -

(Tester 2) Ja, dat had ik dus al

(Tester 6) Ja, het is wel zo dat je je best wel snel beperkt tot europa bijvoorbeeld, en nu zie je wel echt dat je bijvoorbeeld naar indonesie kan gaan, rusland... Het geeft wel motivatie om verder te gaan zoeken.

(Tester 8) Dit is een veel leukere manier van awareness creeren. Ik vind die emails altijd een soort van beetje spam maar ik lees ze wel omdat ik interesse heb. Maar anders zou ik ze niet lezen denk ik en irritant vinden. Nu is dit leuk om mee te 'spelen' en daarna per land te lezen wat de opties zijn. Wat op canvas ook moeilijker te vinden is.

(Tester 9) Nee ik ben persoonlijk niet geïnteresseerd in het studeren in het buitenland

a. Zou je ook weten hoe je dat moet doen?

(Tester 2) Ja, ik denk het wel.

12. (voor studenten die zich wel al hebben aangemeld of al geweest zijn voor een studie in het buitenland) Hoe zou je de installatie vergelijken met wat de UT nu heeft aan middelen om awareness te creëren onder studenten?

(Tester 1) Ik denk dat er qua awareness überhaupt niet heel veel wordt gedaan door de UT. Je krijgt er dan af en toe een mailtje over, dat het bestaat, maar je moet het wel echt helemaal zelf uitzoeken als je het ook daadwerkelijk wil doen. Je moet er echt proactief in zijn.

(Tester 2) –

(Tester 4) Ik moet zeggen: ik was echt verloren. Vanuit de UT wordt niet heel veel vrij gegeven. Dit zou wel echt veel duidelijker zijn dan wat het nu is, want ik kon echt niks vinden. Daarom had ik ook vrijwel gelijk [de study abroad coordinator] gemaild, omdat ik gewoon niks vond wat ik zocht. En hier staat gewoon duidelijk per universiteit hoe en wat, dus dat is beter.

(Tester 5) Ik denk dat het bij de UT wel erg weinig is. Ik heb ooit een keer een notificatie gekregen van schrijf je nu in voor deze Canvas omgeving, maar als ik bijvoorbeeld dat mailtje gemist had, had ik er waarschijnlijk niks over meegekregen. Je ziet het nergens meer. Maarja, als zo'n installatie ergens had gestaan... Het intriqued wel meer, want dan staat er study abroad en dan denk je oja, dat kan ik ook gaan doen.

(Tester 7) Dit is sowieso goed om awareness mee te creëren. Ik wist in mijn eerste jaar nog niet eens dat de uni zoveel mogelijkheden bood voor studeren in het buitenland. Ik wist ook helemaal niet dat het gewoon heel makkelijk als minor kon, en dat het ook niet per se extra geld kostte of wat dan ook. Ik vind het best jammer dat ik er pas heel laat achter kwam door een mailtje dat het kon. Ik denk als deze wereldbol hier gewoon had gestaan, dat ik dan wel meer wist dat de mogelijkheden er waren.

(Tester 8) Zoals al eerder gezegd het trok goed de aandacht en ik vind het een leuke manier van informatie zoeken. Misschien voor later dus nog dat beeldscherm meer gebruiken voor nuttige info ?

(Tester 9) –

13. Wil je verder nog iets kwijt over de installatie?

(Tester 1) Misschien zouden mensen die uit Malta of Cyprus komen ofzo een beetje offended zijn, omdat deze landen niet helemaal accuraat zijn, maar verder is het wel accuraat. Maarja, ik vind hem mooi. Ik vind het ook leuk dat hij kan draaien, hij draait ook soepel.

(Tester 2) Hij ziet er leuk uit!

(Tester 3) Ik vind hem wel heel erg vet. Ik denk dat als je dit in het midden van een gang zet, dat mensen dan wel denken van wat is dit. Ik denk ook dat als je er helemaal omheen kan lopen, dat het dan nog meer aandacht trekt. Ik zou hem denk ik in het midden van een gang of ruimte zetten en dan op het platform waar hij opstaat dat je daaromheen informatie hebt van hoe het te gebruiken is. Dan is ie van alle kanten zichtbaar en dan kunnen meerdere mensen tegelijk het gebruiken.

(Tester 4) Ik zat te denken... Misschien is het leuk om kleine landmarks op de wereldbol te zetten. Lijkt mij wel grappig.

(Tester 5) Ik vind het een erg mooie, gedetailleerde kaart.

(Tester 6) Het enige wat ik nog kan zeggen is... Toen ik eerst een land scande kwam er in de taal van dat land dus een tekst te staan, heel erg leuk, maar ik dacht dat ik belangrijke informatie miste omdat ik die taal niet begreep.

(Tester 7) Denk het niet. Ik vind hem leuk.

(Tester 8) –

(Tester 9) Ik vind het een mooi ding.

Appendix B: Consent form User-Test

Consent Form for Viaa internationalization user research YOU WILL BE GIVEN A COPY OF THIS INFORMED CONSENT FORM

Please tick the appropriate boxes

Yes No

Taking part in the study

I have read and understood the study information dated 21/01/2021, or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.

☐ ☐

I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.

☐ ☐

I understand that taking part in the study involves a questionnaire. While answering the questions, I can always ask for help when I do not understand something. I can also skip questions and stop filling out the questionnaire at any time.

☐ ☐

Use of the information in the study

I understand that information I provide will be used for the thesis only. When filling in the questionnaire, I do not have to provide any personal identifiable data. The data will be used explicitly for this thesis, and will be destroyed immediately after the thesis is finished.

☐ ☐

Signatures

Name of participant

Signature

Date

I have accurately read out the information sheet to the potential participant and, to the best of my ability, ensured that the participant understands to what they are freely consenting.

Researcher name

Signature

Date

Study contact details for further information:

Mariska Geelhoed

m.r.geelhoed@student.utwente.nl

Contact Information for Questions about Your Rights as a Research Participant

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee Information & Computer Science: ethicscommittee-CIS@utwente.nl

Appendix C: Information sheet User-Test

Information brochure

Viaa internationalization user research

Dear reader, In this letter I would like to inform you about the research you have applied to participate in. In the proposed research, observations will be done as well as surveys. The observations and surveys will take place at my place (Mina Krusemanstraat 112), the Covid-19 measures of the UT will be taken into account. Participating in this research will cost 15-20 minutes of your time.

For my graduation project I will do research for Viaa University of Applied Sciences in Zwolle. Viaa has recently been expanding the possibilities for students to study or do an internship abroad. Students at Viaa often do not know that these options are available, which is why the university of applied sciences wants to draw more attention to this in the form of an interactive information display that is placed in the central hall of the school. The content displayed on this screen should bring more awareness among students about studying or doing an internship abroad. Initially I would only focus on designing the content for the display, but in the previous research I've done on attracting people to displays, it turned out that a physical object placed next to the screen often attracts more people than if there was only a display. I now want to test this with a prototype of a physical globe that is placed next to the screen, on which countries can be scanned with a mobile phone (by means of NFC chips), after that, people get an overview on their phone with the schools / internships that are available. I want to investigate how effective this is, and what attracts people more quickly: a physical globe, after which you have information on your own phone, or a display where all the information can be found, or maybe even both. In this way, I want to find out whether having a physical element next to the screen (or without the screen) has a positive influence on creating awareness among students about the options they have to go abroad.

When testing the installation, you will be able to scan a country of your choice with your phone using NFC (a connection your phone can make to transfer data over a short distance). After scanning a country, you will see more information on your phone about the possibilities of studying abroad. Once you've explored this for a while, I'll ask you some questions (general questions, technical questions, content questions). When answering the questions, you do not have to provide any personal identifiable data. The data will be used explicitly for my thesis, and will be destroyed immediately after the completion of it.

Participants of this research will not receive any remuneration for participating. Participation in the research is and will remain voluntary at all times. Participants can at any moment before or during the research refuse to participate. After the research has been completed a participant may notify the researcher that the data regarding that participant may not be used in the research when done within 24 hours. The anonymity of all participants is guaranteed and information will not be disclosed to any third parties without the permission of the participant. Any discoveries not related to the purpose of this research will not be documented or recorded, and the participant will be made aware.

Following the research, the participant may choose to be notified of the resulting studies of the research.

Yours sincerely,

Mariska Geelhoed
Tel: +31 6 50238605
Email: m.r.geelhoed@student.utwente.nl

Appendix D: Google Form Questions and Answers of Test Iteration

Graduation Project User Test

Dankjewel dat je me wil helpen met mijn afstudeerproject!
Dit is een korte evaluatie (3 min) over wat jij van deze installatie vindt.

Even wat achtergrondinformatie:
Voor mijn afstudeerproject heb ik de opdracht gekregen om voor Hogeschool Viaa in Zwolle iets te designen waardoor de mogelijkheden voor study abroad meer verduidelijkt worden onder de studenten. Omdat ik door de toestand met Covid-19 niet op de hogeschool zelf kan testen, gebeurt het nu op de UT. De informatie en de partner universiteiten zijn allemaal wel gewoon specifiek voor de UT en niet voor Hogeschool Viaa. Je kan er dus misschien ook nog iets nuttigs van opsteken!

P.S Mocht je nog vragen hebben of meer willen weten over het onderzoek, stuur dan een berichtje naar m.r.geelhoed@student.utwente.nl

 **geelhoed.mariska@gmail.com** (niet gedeeld) [Ander account](#) 

Nog even iets over consent. De data die je in deze form achterlaat is niet-identificeerbaar en zal alleen worden gebruikt voor dit onderzoek (en wordt daarna zo snel mogelijk verwijderd). Meedoen aan dit onderzoek is totaal vrijwillig en je kunt op elk moment stoppen zonder dat daar consequenties aan hangen. Heb je alles begrepen en geef je consent?

☐ Ja

☐ Nee

In welk studiejaar zit je?	Wat voor type telefoon heb je?	Ben je op dit moment of heb je je in het verleden ingeschreven voor een study abroad?	Hoeveel wist je al van de mogelijkheden van de UT om in het buitenland te studeren?
3	Samsung galaxy a12	Nee	2

2	Samsung galaxy s7 edge	Nee	3
3	Samsung A52	Ja	4
1	Iphone SE 2020	Nee	1
1	Android	Nee	
1	Samsung	Nee	3
3	Android, samsung A nog iets	Nee	3

--

Wat dacht je toen je de installatie zag staan?	Was het duidelijk hoe je de installatie moest gebruiken?	Zijn er problemen geweest met het scannen van de landen?	Hoeveel landen heb je gescand?
Wat is dat?? Kan ik er aan draaien?	Door de info rondom de installatie wel ja	neen	4-8
Ziet er wel vrolijk uit, ik wilde er graag even aan draaien	Ja, de plaatjes helpen wel goed!	Op een plaatje stond dat je android phones met het midden tegen de bol moet houden, maar toen deed ie het niet gelijk. Volgensmij zit mijn chip aan de bovenkant.	3
Ziet er interessant uit, daar wil ik mee kloten	Ja, toen ik de plaatjes zag gelijk	Nee man	Allemaal
"Oeh dit ziet er cool uit!"	Ja	Nope	4-8
Wajooow, woeleh dikke wereldbol	Ja hoor	Nee	Allemaal
Ziet er cool uit	Ja alles is duidelijk beschreven	Nee werkt perfect, werkt beter dan mijn telefoon in de supermarkt scanr	1
Mooi groot en goed stevig	Het principe van de NFC chips was meteen duidelijk op het eerste gezicht maar toen ik naar de plaatjes keek wel	Nee	3

--

Waarom heb je de landen gescand?	Na het scannen werd je geleid naar een website, stond hier de informatie die je verwacht had dat er zou staan?	Wat voor informatie miste je?	Was het makkelijk om te navigeren op de website?
Omdat het leuk is en ik van een paar landen wilde weten wat er mogelijk is	Ja		Ja
Ik wilde weten wat voor universiteiten er waren in elk land	Ja, opzich wel maar er ontbreken een aantal paginas	Ik had graag een beetje een indicatie van de courses willen zien en gwn de eisen een beetje onder elkaar	Ja

Ik wilde kijken hoeveel universiteiten er per land meededen	Ja	Mis in wat voor velden bepaalde universiteiten uitblinken, engineering, arts, etc.	Ja
Ik was benieuwd naar wat het deed. Na de eerste wilde ik een paar andere ook uittesten en kijken wat die lieten zien.	Ja	Misschien wat meer informatie over wat je bij die studies kan doen	Ja
Leuk man	Ja	Voorwaardes om bij de Universiteit te komen/bijvoorbeeld aantal beschikbare plekken enzo	Ja maar als je op iets drukt kom je steeds op hetzelfde plekje
Om te testen of het werkt	Ja	Info over toelatingseisen	Ja
Random en Japan omdat er op de site stond dat die compleet was	Ja		Ja

--

Heb je iets nieuws geleerd over studeren in het buitenland?	Heb je meer motivatie gekregen om in het buitenland te studeren?	Wil je nog iets kwijt over de installatie?
Ja	Ja maar ik ben 3e jaars dus gaat waarschijnlijk niet meer lukken	Poah wat een mooi ding
Wel de landen waar ik heen kan, maar ik moet me er later even wat meer in verdiepen want op dit moment kun je je toch niet echt aanmelden	Misschien een beetje	De bol is een beetje wankel, ik durfde niet te hard te draaien.
Nee, ik heb me er al heel goed in verdiept	Ja, maar ik moet er nog wel even goed naar kijken	De stikers kwamen een beetje los
Nee, ik ben niet geïnteresseerd in studeren in het buitenland, dus de informatie boeit me niet zoveel	Niet meer dan voor het gebruik van de installatie	Hij werkte erg goed en was heel simpel en makkelijk om te gebruiken!
Nee, ik heb me er al heel goed in verdiept	Ja!	Leuk hoor
Ja	Ja!	Mooi gemaakt!
Nee ik had met enorm diep gelezen, en vrij snel genavigeerd tussen de landen	Niet meer dan voor het gebruik van de installatie	Leuk initiatief! :)

Appendix E: Student interview

Welk studiejaar zit je?

3e

Hoe ben je op het idee gekomen om in het buitenland te studeren?

In mijn middelbare school tijd wilde ik eerst een tussenjaar doen naar het buitenland, toen ik op de open dag van mijn huidige study zag dat er een half jaar ruimte was om zelf iets in te vullen (en dus ook de optie om naar het buitenland te gaan) ben ik toch daar voor gegaan omdat dat financieel logischer was en ik een stuk zelfstandiger en ouder zou zijn. Toen ik in mijn eerste jaar zat heb ik dit idee eigenlijk best wel laten varen omdat ik druk bezig was met studeren. In het tweede jaar moesten we ons ineens inschrijven voor onze minor en toen heb ik snel even uitgezocht hoe en wat.

Hoe heeft de universiteit duidelijk gemaakt wat de mogelijkheden waren?

Je moet zelf een beetje bedacht hebben dat je het wil doen en dan het zelf een beetje uitzoeken. Er wordt verder niks aan awareness gedaan. Op een gegeven moment kreeg ik een standaard mailtje dat als je geïnteresseerd was in een study abroad, je je moest aanmelden op canvas. Als je dan op de canvas pagina over study abroad terecht komt is er wel veel informatie en krijg je ook berichten over mogelijkheden en informatie sessies.

Was het overzichtelijk?

Ik vond persoonlijk de canvas pagina overzichtelijk genoeg alleen is niet alle nodige informatie daar vermeld. Op de informatie sessies wordt ook veel extra handige informatie gegeven die niet altijd overzichtelijk is. Je moet er zelf echt even doorheen spitten.

Moest je zelf veel research doen? Zo ja, hoe ging dat?

Ja, zou ik wel zeggen. Voor het algemeen krijg je veel informatie en uitleg maar ze kunnen natuurlijk niet over elke buitenlandse universiteit alles weten dus daar moet je dan zelf onderzoek naar doen. Dingen als inschijfprocedure, vakken en semester data etc. Dat heeft wel echt veel tijd gekost ja. Het zorgde er ook wel voor dat ik er minder zin in kreeg. Ik moest ook gewoon nog mijn andere vakken halen en dat ging toen wel voor zeg maar.

Hoe kwam je in contact met de coördinator?

Ik heb haar volgensmij gemaïld toen mijn professional development mentor het voorstelde nadat ik mijn study abroad plannen met hem deelde. Het was via via. Ik was denk ik liever eerder met haar in contact gekomen, want de deadline van inschrijven was blijkbaar al.

Heb je ervaringen van studenten gelezen? Zo ja, had je er iets aan?

Ja, eerst was er geen studenten ervaring van de universiteit waar ik heen wil op de canvas pagina te vinden maar toen ik het na vroeg bij de coördinator bleek dat wel zo te zijn en is het wel op de canvas pagina gekomen. Hier stonden toen ook de contact gegevens van de schrijver van het experience report en toen heb ik nog even met haar gemaïld en erg hulpzame informatie van haar gekregen.

Appendix F: Student interview user test iteration

Welke verandering aan de installatie valt op?

De opstelling is anders, geen whitboard meer, geen scherm en wel een andere uitleg manier de cirkel om de bol heen, die echt zo goed gedesigned was trouwens. Dit was wel beter dan met een scherm. Tenminste omdat de vorige keer het scherm niet extra informatie bood. Ik zag ook dat je de website wat hebt uitgebreid. Ik kreeg eerst een paar meldingen dat de pagina niet bestond, maar nu was dat helemaal niet zo. Ik heb niet heel goed de tekst gelezen moet ik eerlijk zeggen dus ik weet niet of je daar iets veranderd hebt?

Heb je Europa gescand?

Ja, daar is ook iets veranderd geloof ik. Nu is er in plaats van een standaard documentje gewoon netzoals bij de rest gewoon meer overzicht, dat is wel chill.

Vind je het jammer dat je deze landen niet apart kan scannen?

Opzich wel, maar ik kan ook wel begrijpen dat dat natuurlijk niet op die bol past. Bestaan er kleinere chips of kun je ze knippen ofzo? Dan zou het misschien wel kunnen I don't know. Nou ja, het stoort in ieder geval niet, maar ik denk dat er best veel mensen zijn die gewoon graag in Europa willen blijven. Als je dan deze wereldbol gebruikt voor je orientatie is wel het hele idee weg van dat je soort van kan uitzoeken waar je heen gaat door die dingen te scannen. Mij stoort het dus zelf niet echt, want ik ben meer geïnteresseerd in een minor in een wat verder land buiten europa, maar dat ben ik.

Vallen de gebruiksaanwijzingen nu meer op dan bij de originele installatie?

Als het wat groter zou zijn en misschien in een hoek zodat je het beter zou lezen dan wel. Als je alleen dat ronde om die bol heen zou hebben dan valt het niet zo op denk ik. Ik zal nu vooral de grote aanwijzingen op de voorgrond, maar ik vind het idee van zo eromheen wel leuk.

Zijn alle landen goed te scannen? Zijn er landen die moeilijk te bereiken zijn omdat ze te laag zijn?

Australië was wel lastiger inderdaad maar de rest was prima

Mis je het scherm naast de wereldbol?

Nee want er stond niet echt nuttige informatie op, sorry.

Had er nuttige informatie op kunnen staan?

Ja, weet ik niet. Als je die uitleg erop zou doen van hoe het te scannen is enzo misschien, maar op papier zo werkt dat ook wel.

Is het nu duidelijk dat het om study abroad gaat denk je?

-Dat zeker, misschien een soort bordje op de uitleg rand met study abroad locations? Kan geen kwaad denk ik? Nu weet je het eigenlijk pas zeker wanneer je die dingen scant. Das opzich ook wel leuk, dan is het een beetje een verrassing ofzo.

Ben je tegen een technisch probleem aangelopen?

Neen, eerst waren er dus wat pagina's op die site die het niet deden, maar nu was dat niet zo.

Appendix G: Overview of researched websites

University	Display	Overview	Information	Encouragement	Contact
Radboud Universiteit	<p>Er is een interactieve kaart met alle internationale partners. Wanneer je op een bolletje klikt, hoor je student reports en een factsheet te zien van die universiteit, maar werkt niet.</p> <p>Kaart is niet op de homepage, maar opzich redelijk snel te vinden.</p>	<p>Links een menu met veel opties, veel tekst.</p> <p>Op de homepage staan (onder een stuk tekst) een paar foto's waar je op kunt klikken. (niet groot en beetje onderaan de pagina. Zie je pas als je gaat scrollen)</p>	<p>Heel veel informatie op 1 pagina.</p> <p>Informatie te vinden over voor, tijdens en na je vertrek.</p> <p>Actuele informatie (corona etc.)</p> <p>Verwijzen naar "wilweg" website</p>	<p>Op de homepage staat tekst dat het je het moet doen.</p> <p>Onder "ervaringen" kun je vlogs vinden van studenten (je kan ook je eigen vlogs insturen). Vlogs doen het niet.</p> <p>Verslagen van studenten.</p> <p>Geen foto's, alleen tekst.</p>	<p>Er is een FAQ</p> <p>Geen direct contact met studenten in het buitenland.</p> <p>Onder "contact" staan heel veel contactpersonen, het is niet duidelijk wie je voor wat moet hebben.</p>
Universiteit Groningen	<p>"International Exchange Search Engine": weinig aan design gedaan. Lastig filteren, geen kaart.</p> <p>Google maps?</p>	<p>Veel tekst, 1 standaard stockfoto.</p> <p>Links een menu met veel opties, veel tekst.</p>	<p>Deadlines voor inschrijven gelijk het eerste dat je ziet.</p> <p>Requirements, application, tips and tricks... Maar</p>	<p>Voordelen van in het buitenland studeren gelijk al op de homepage.</p> <p>Verder niks van verhalen of video's</p>	<p>Geen direct contact met studenten in het buitenland.</p> <p>Wel overzichtelijk wie je moet hebben voor vragen.</p>

	In een oogopslag veel informatie.	Opzich wel duidelijk waar je moet zijn, maar niet veel doorklikken. Alles is vaak op 1 pagina gepropt.	misschien ook te specifieke informatie.	van studenten zelf.	Verskillende opties gegeven voor contact.
Universiteit Utrecht	<p>Aparte bestemmingspagina.</p> <p>Geen wereldkaart, maar wel overzicht doordat je alles kunt filteren.</p> <p>Filteren op bestemming, niveau, opleiding.</p> <p>Wanneer je klikt op een universiteit krijg je gelijk een quote te zien van een student die daar gestudeerd heeft en foto's. Verder zie je eigenlijk alle informatie die je nodig hebt.</p>	<p>Kopjes die je kunt uitklappen.</p> <p>Menubalk kun je ook steeds verder uitklappen.</p>	<p>Homepagina: informatie over coronavirus, leuke cartoon over de stappen die je moet nemen, meer informatie.</p> <p>Verder is alles wat je moet weten wel makkelijk te vinden.</p> <p>Stappen zijn duidelijk aangegeven.</p>	<p>Motiverende tekst op de homepagina.</p> <p>Verhalen en ervaringen van studenten te vinden voor elke specifieke universiteit. (moet je eerst wel zoeken)</p>	<p>Staat duidelijk met wie je contact op kunt nemen als je nog twijfelt.</p> <p>Geen direct contact met studenten in het buitenland.</p> <p>Wel overzichtelijk wie je moet hebben voor vragen.</p>
Marnix	Gelijk een kaart op de	Geen menu, alles	Je wordt op de	Nee, ze zeggen alleen	Nergens iets over

Academie	homepagina waar te zien is met ingekleurde landen waar je heen kan. Verder niet interactief.	staat op 1 pagina. Wel verwezen naar verdere documenten en links.	homepagina meteen al verwezen naar een flyer. (flyer bevat geen extra info) Heel weinig informatie.	dat er een mogelijkheid voor is.	contact te vinden, zowel contact met studenten zelf als met de universiteit.
Hogeschool Leiden	Geen overzicht van welke locaties er allemaal mogelijk zijn.	Geen menu, alles staat op 1 pagina. Wel verwezen naar verdere documenten en links.	Informatie over coronavirus. Informatie over wat het international office voor je kan betekenen (met een video erbij) Linkje naar een document waar een stappenplan in staat. In de brochure staat ook nog veel informatie	Bovenaan de pagina staat een quote van iemand die in het buitenland gestudeerd heeft. Vervolgens linkjes en foto's naar verhalen van anderen die in het buitenland gestudeerd hebben. Dingen als: "Bekijk de video om de antwoorden te ontdekken"	Veel informatie over wat je kan doen en wie je kan bereiken als je geïnteresseerd bent. Bovenaan de pagina is nog een extra plek waar je contact op kan nemen met de hogeschool hiervoor. Geen direct contact met studenten in het buitenland.
Windesheim	Maken gebruik van Mobility online. Ziet er lelijk en ouderwets uit, veel lege plekken	Mobility online ziet er gewoon niet zo heel mooi uit, maar alle informatie die je	Op de site van Windesheim staat niet veel, wel welke opleidingen en iets	Korte motiverende tekst bovenaan de webpagina.	Wanneer je in Mobility online op een hogeschool klikt, vind je het adres en

	<p>en weinig tekst.</p> <p>Maken gebruik van een wereldkaart. Best wel klein en heel erg veel puntjes in europa, waardoor het niet meer overzichtelijk is. Opzich wel makkelijk filteren, maar het laden duurt wel erg lang.</p>	<p>wil weten staat er wel in. Misschien wel iets te veel? Lastig te vinden.</p> <p>Je moet wel erg vaak doorklikken om te komen waar je wilt zijn. Op de site van Windesheim is niet echt een menu te vinden.</p>	<p>over Erasmus+</p> <p>In Mobility online kun je de locaties bekijken en (korte) questionnaires van studenten die op bepaalde locaties waren geweest.</p> <p>Questionnaires vielen niet zo op, lastig te vinden.</p>	<p>Een filmpje met als titel “What makes our exchanges so unique?”</p> <p>Geen verhalen van studenten of iets dergelijks.</p>	<p>links naar de website, maar niet per se een contactpersoon of een student waarmee je kan praten/ vragen kunt stellen.</p>
University of Hong Kong	<p>De landen van de partners worden weergegeven in foto's waar je doorheen kunt scrollen (maar niet op kunt drukken).</p> <p>Daaronder is een lijst met landen en kun je filteren op een land.</p> <p>Als je op een universiteit klikt, word je doorgestuurd naar de website van deze universiteit.</p>	<p>Homepagina duidelijk geordend. Je weet precies waar je moet zijn.</p> <p>De knoppen zijn als foto's en lekker groot.</p> <p>Bovenin is nog een menubalk waar je kan navigeren.</p>	<p>Informatie over de soorten reizen naar het buitenland kan maken, over events, studiebeurzen, nieuws, about us, corona...</p> <p>Er staan veel outdated dingen in, zoals dingen waar je in 2017 nog voor had moeten inschrijven.</p>	<p>Onder “Outgoing Students” staat er een verhaal over waarom je zou moeten gaan.</p> <p>Een hele reeks aan verhalen van studenten. Je kunt daarop verder niet filteren.</p>	<p>Er is een knop waar je gelijk een afspraak kan maken met een coordinator.</p> <p>Geen direct contact met studenten in het buitenland.</p>